

# Railway Age Gazette

DAILY EDITION

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make an alteration in some standard or recommended practice advisable. It is up to the members individually to draw attention, either by letter to the committee or on the floor of the convention, to anything bearing on the subject of standards that may come to their notice.

AN inspection of the exhibits in machinery hall gives evidence of an increased appreciation by machine tool builders in general of the demands of the users for safety appliances. In practically all cases, the tools exhibited have all the exposed gearing carefully covered; belts are inclosed and there are no exposed bolt heads or pins on moving parts, and in one case at least, push buttons for stopping the motor are provided within convenient reach of the operator. That the builders have so quickly caught the spirit of the move toward greater safety in the shops, now so vigorous throughout the whole country, is but another proof of the desire of the fraternity to coöperate with the users, not only in securing the output desired but in every other reasonable suggestion even though it may add considerably to the cost of their product.

THE use of car unloaders for ore and coal has been confined largely to the docks on the great lakes and the Atlantic coast, but the economic handling of heavy low grade materials has suggested their use for cars loaded with stone and cement and this extension of the territory where car unloaders are used, will cause a more general interest among M. C. B. members as the means for preventing damage to cars by these devices. The committee is making good progress in designing protective blocking for this purpose, but continued coöperation is necessary to keep this damage under control and provide for changing conditions both in the cradles and the cars. One would naturally think that hydraulic or pneumatic cylinders which would provide an adjustable contact between the car side and the cradle would be a practical solution of the difficulty, but the trial of such a device at one of the large docks has proved a disappointment, and the chief reliance for relief is now based on the proper use of the wooden blocking which the committee recommends.

IT is not an unusual thing for an exhibit in connection with the mechanical conventions to excel all its predecessors. The exhibits have been steadily improving year by year. It cannot be too emphatically stated, however, that this year's is distinctly the best ever made. The floor space occupied is the largest ever used, it is probable the number of different devices shown breaks all previous records, the number of new devices displayed is extraordinary and the exhibit committee and the individual exhibitors have been unusually successful in making both attractive general and booth arrangements. The machinery exhibit is very large, and the number of machines in operation is in proportion. The successful efforts made year after year by the supply men to place on the pier all the mechanical devices that will be interesting or instructive to railway men merits the most unstinted commendation. Furthermore, it calls attention forcibly to the large and important part played by the capital, enterprise and inventive genius represented by the supply fraternity in promoting the safety and economy of railway transportation. This is a point to which attention is not called as often as it well might be. The business ability and engineering skill in the supply trade have been a mighty factor in giving its present character to transportation in this country, and probably no other class of men more frankly recognizes or fully appreciates that fact than the railway officers who year after year attend the conventions of the great mechanical associations.

A PROBLEM will be presented to the executive committee of the Master Car Builders' Association if the attendance and the interest in the meetings continue to increase as they have during the past two years. Although the seats are filled in the meeting hall, there are not even now sufficient chairs for those attending. While there would be a number of objections to such a move, it may be necessary to hold at least part of the meetings next year in the Hippodrome, on the second floor of the exhibition hall.

THE rank and file of the Master Car Builders' Association are chiefly responsible for seeing that the standards of the association do not become obsolete and useless. The committee on revision cannot be expected to personally discover every phase of changing conditions that may

"AN air pump is the most extravagant thing on a locomotive," said Robert Quayle in his address to the members of the International Railway Fuel Association. He did not mean that the air pump, *per se*, is extravagant but that it is forced to operate at an extravagant rate of speed practically all the time the locomotive is on the road. Even under these conditions they are not infrequently found in train line pressures of not over 50 lbs. during a whole trip of a long freight train, often with two of the largest size air pumps working at top speed. It is not the air pump that is extravagant, it is the waste of air. Every effort is being made to reduce transportation costs by operating the maximum size trains. Larger locomotives, grade reduction, large capacity cars, accurate tonnage rating, everything, is directed toward more ton-miles per train and per hour. There can be no backing down in this effort. The big train is here, and will continue to get larger, and its pressure is the cause of the trouble with air pressure in the train line. The trouble in this case cannot be cured by removing the cause. Much of the waste of air in the long trains occurs at the hose couplings between the cars at the head of the train. This is especially the case when some of the older equipment occupies this position, and is greatly aggravated by cold weather when the hose is stiff. This weather equipment will be in use for many more years and it appears that the committee on Train Brake and Signal Equipment has in it a problem sufficiently serious to warrant careful and prompt investigation.

IN discussing the report on Overhead Inspection of Box Cars there seemed to be a feeling on the part of some that the faulty condition of the equipment from the standpoint of damage and loss to freight was due to negligence on the part of the car department officers in not insisting on a higher standard of upkeep. If this is true then the Master Car Builders' Association should take immediate and thorough steps to remedy the difficulty, for a reading of the discussion of this report will convince anyone that an unsatisfactory condition exists at the present time. This was also demonstrated in the series of articles on Defective Box Cars and Damaged Freight which appeared in the RAILWAY AGE GAZETTE during April and May of this year. The conditions of the box car equipment on most roads is such that it cannot be put in proper shape without the expenditure of considerable sums for replacing defective parts with satisfactory ones. The master car builders cannot do this without support and authority from above. Mr. Brazier's resolution to the effect that the matter of defective equipment be called to the attention of the American Railway Association is on the right track. There is no question but that the members of the Master Car Builders' Association can keep the equipment in good condition if it is properly constructed in the first place, but if it is not and the railway executives are the only ones who can remedy the difficulty by authorizing sufficient expenditures to put it into first-class shape. Moreover, the only way in which concerted action can be had on all of the roads is for the American Railway Association to take the matter in hand and insist that proper measures be taken to bring this about. It cannot be accomplished in a day. If only those cars which are burglar and leakage proof were allowed in service, practically the entire box car equipment of the country would be tied up. It will take time to clear up the situation, and serious as the condition is and much as it needs to be remedied quickly, care must be taken to go about it in the right way. The logical course, as already suggested in the RAILWAY AGE GAZETTE, would be for the American Railway Association to take steps to see that all new cars are properly built, and that the ones now in service are properly fixed up as they go through the shop for heavy repairs. The conditions would thus be entirely cleaned up within a few years.

#### FREIGHT CAR TRUCKS.

IN the earlier years of the Master Car Builders' Association efforts were made to adopt a standard freight truck, and several successive committee reports were made on the subject. Car capacity was then growing from 40,000 to 60,000 and 80,000 lbs., and increasing loads made new designs for trucks necessary. The association was then, as it has since, unconsciously perhaps, appointing committees to recommend standards which it did not intend to adopt. And so the reports on standard freight trucks were received but never adopted. In later and more recent years the principal details for freight trucks have been separately taken up for investigation as to materials and proportions, until nearly all have been considered, and there is at hand sufficient recommended or standard practice to make up a complete truck. The first and most important standards were the axle, journal box and bearing, the wheel and brake shoe, as these were the parts which wear out and require most frequent renewals, often on foreign lines. The economy, convenience and time saved by the standardization of these parts probably exceeds that relating to any other railway standards, as the renewals are made in such large numbers.

The two reports on truck details presented this year complete the list of the more important details. That on springs takes up the important question of obtaining greater flexibility in springs under high capacity cars. The space for springs in the accepted designs for freight trucks is so small that spring bars of large diameter are necessary to obtain sufficient strength with steel which cannot be safely stressed beyond 85,000 lbs. per square inch. These large bars make a very rigid spring with a small range of deflection. The committee has in view the use of alloy steel bars, heat treated and carefully tempered, so that a safe working stress of 100,000 to 120,000 lbs. per square inch can be used. With such material the size of the bar can be reduced, the deflection increased and a much easier motion obtained.

For 50-ton cars the springs should be more flexible than they now are, so that the truck will not be so rigid when the car is empty or lightly loaded. This is especially true for the proposed springs for the trucks of 70-ton cars where the bar is  $1\frac{3}{4}$  in. in diameter. The spring makers should supply springs made of higher grade steel, and the association could secure better results by making a standard specification for freight car springs which can only be met by a steel having a much higher working stress than that heretofore used.

The railways are to blame in buying freight cars under sharp competition, where metal fixtures of ordinary quality are accepted in consideration of the low price. It is for this reason more than any other that the quality of freight car springs has not improved. The report on freight car springs includes a design for 140,000 lb. capacity cars, while that on freight truck sides deals with the requirements for 80,000 lb., 100,000 lb. and 150,000 lb. capacity cars. It would seem desirable for the association to settle on 150,000 lb. capacity as the next step in increased car capacity, and see that all details considered as standard are proportioned for that capacity. This will avoid the multiplicity of dimensions which must follow if intermediate capacities are included.

The report of the committee on Freight Truck Sides and Bolsters is not a final one, because the association has not provided funds for the tests of complete structures, necessary for the proper preparation of the specifications. The recommendations are based on current practice as regards the quality of the material, which is low carbon and low strength steel. An ultimate strength of 60,000 lbs. per square inch can be obtained from the most ordinary steel casting, and, considering the magnitude of the stresses to which freight truck sides and bolsters are subjected, it seems desirable that a higher grade of material should be obtained so that the sections of the structure are not made larger and heavier than necessary. Some of the lines are already using a specification which requires a grade of steel having an ultimate



mate strength of 80,000 lbs. per square inch—33 per cent. higher than that recommended in the report.

It is not clear why the committee recommends that its specification for the quality of the steel castings should be adopted as standard, when its investigation is incomplete and it is unable to make definite recommendations concerning physical tests of the completed structure. It seems desirable that a standard specification should be based on an investigation of the best material available. The truck sides and bolsters of the truck for a 75-ton car will have massive proportions if low strength steel is made the basis of its dimensions, and the railways should not be required to haul an excessive dead weight when the minimum weight which is necessary for safety can be obtained by the use of a proper grade of cast steel and by good engineering design.

#### GOVERNMENT REGULATION OF SAFETY APPLIANCES.

THE Master Car Builders' Association did very little regarding the matter of safety appliances. Doubtless it will be possible to make the same statement next week in reference to the Master Mechanics' Association. There are two main reasons for this. One is that the safety appliance specifications adopted by the Interstate Commerce Commission are still new, and as in the main they are satisfactory under present conditions, there was not much opportunity for suggestions or discussions of proposed changes. The second reason is that legislation and the commission having taken the determination of what appliances shall be used out of the hands of the railways, there is a natural, and probably inevitable, disposition on the part of railway men to give comparatively little consideration to that matter.

There is a danger in this situation of affairs to which attention should be given during the present period of transition. It must be perfectly evident to every intelligent and thinking person that the Interstate Commerce Commission and its inspectors do not know, and never can know, the needs of the railways in respect to safety appliances and the best methods for meeting these needs, as well as the operating and mechanical officers of the railways know them. Even if the commission should employ as its advisers some of the most experienced and expert mechanical men in the country, who were not in railway service, they would be less able to decide what changes in appliances should be adopted from time to time than would the operating and mechanical officers of the railways; and the commission has no such expert advisers now. It is unfortunate that the commission and its inspectors sometimes seem inclined to proceed on the theory that it is their function to catch the railways in breaking the laws and to prosecute them for it, rather than to co-operate with them in preventing accidents and removing their causes. This tends to excite antagonism and fear on the part of railway men, and to prevent them from engaging in that free discussion among themselves and from offering freely that advice to the commission which is so essential both to the most salutary administration of existing laws and regulations, and to the future progress in the development of the devices and methods that are necessary to best promote the safety of transportation.

However, the present safety appliance specifications were adopted and the present boiler inspection law was framed after full consultation between the commission, the representatives of the railways and the representatives of the railway brotherhoods; and it is to be hoped that the same policy will obtain in future.

The success of government regulation will be much greater and more certain, and economy and safety in transportation will be best furthered, if the commission will on all occasions frankly indicate to railway officers that it fully recognizes its need, and sincerely desires the benefit of their great collective experience and knowledge, and if railway officers will freely place their experience and wisdom at the commis-

sion's disposal. The policy that will, in the long run, get the best results, is for the commission merely to give the force of law to the best judgment of railway men. If it tries to do any more than this, it will do a great deal less. Public regulation should seek to prescribe ends, not means; regulating authorities are competent to say what ought to be accomplished, but they are, and always will be, far less competent than practical men in actual service, to say how it ought to be accomplished, and when they try to usurp the functions of the railway manager, the railways will be neither well regulated nor well managed.

#### IMPROVED BOX CARS.

WHEN the valuable features of this convention are considered, we venture to predict that the subject of "box car defects," as explained at length in the report on The Overhead Inspection of Box Cars, and further illuminated by the discussion, will stand out prominently as the most important. The number of box cars now in service in the United States is nearly one million, or more than 45 per cent. of the total freight equipment. A large proportion of them have wood underframes. Antiquated types of wooden roofs and poor door fixtures are also found in large numbers. Even where steel underframes are used the attachment of the wooden superstructure is frequently of poor design, so that there is even more leakage of grain than in a good wooden car. The box car body has been made stronger by the use of larger posts and braces, but the soft pine siding and lining is not as good as that used on the older cars built when sound lumber could be obtained for the purpose.

Taken altogether, the box car is the weak member in the train, and when roughly used in classification yards and by the application of heavy brake pressure, producing sudden stops in main line service, there is a movement in the joints which results in defects, and the inertia of the door under the same violent shocks soon destroys its stops. The speed of handling freight cars in yards is based on the resistance of all-steel hopper and gondola cars, but the box car has not sufficient strength for such rough handling without damage. Under this service the general condition of box cars has become dilapidated, and the defects are such that the lading of grain, merchandise, flour and similar commodities is not properly protected. A defective car body does not render the car unsafe to run, and inspection and repairs have been directed principally to the trucks and underframe.

The large losses due to grain leakage, theft, injury by water due to leaky roofs, and similar defects are now calling forcible attention to the necessity of proper repairs to the car body. The report of the committee on Overhead Inspection of Box Cars should be regarded as a preliminary one which shows the gravity of the situation and the necessity for greater care in providing equipment in proper condition to protect lading liable to loss or damage in transit. A further consideration of the subject should concern itself with necessary improvements in the design of box cars so they will not be so liable to injury as the older equipment.

The ordinary wooden box car which is still built in large numbers is no longer suitable for modern conditions. A steel underframe as strong as that of other cars should be regarded as a prime requisite, and the design of the car body should be such as will substitute steel for wood whenever it can be economically applied. A pressed steel end has been successfully introduced on a few box cars, and it adds greatly to the strength of the car. Steel carlines and metal roofs are also largely used, and a steel door which combines the grain and side door in one is now being applied to some new cars. Improved door fixtures which overcome all the objections which were pointed out in the discussion are now available, and it would seem proper for the association to standardize some of these improved box car fixtures or require their equivalent.

## Announcements.

### TO-DAY'S PROGRAM.

#### M. C. B. ASSOCIATION.

Individual paper, Car Shop Apprentices, I. S. Downing, M. C. B., L. S. & M. S.....	9.30 to 10.00
Discussion of reports on:	
Train Pipe and Connections for Steam Heat	10.00 to 10.30
Tank Cars .....	10.30 to 11.00
Specifications for Tests of Steel Truck Sides and Bolsters .....	11.00 to 11.30
Capacity Marking of Cars.....	11.30 to 11.45
Lettering Cars .....	11.45 to 12.00
Unfinished business; reports of committees on correspondence, resolutions, and such other committees as may be named during the convention .....	12.00 to 12.15
Election of officers .....	12.15 to 1.30

#### Adjournment.

#### ENTERTAINMENTS.

*Orchestra Concert, 10.30 A. M.*—Entrance Hall, Million Dollar Pier.  
*Orchestra Concert, 3.30 P. M.*—Entrance Hall, Million Dollar Pier.  
*Musical, 9.00 P. M.*—Entrance Hall, Million Dollar Pier.

### RAILWAY CLUB SECRETARIES.

The annual meeting of the Society of Railway Club Secretaries will be held at 10 o'clock Saturday morning, at the Marlborough-Blenheim. At 7.30 o'clock in the evening the members and their friends will have their annual dinner at the Strand Hotel.

### DISCS ON BADGES.

The Enrollment Committee has a request to make of the railway men, and it is this: "Please be sure to see to it, in each and every individual case, that the proper disc, given when you register, is worn around your membership button on all occasions."

### UNIVERSITY OF ILLINOIS DINNER.

The University of Illinois men attending the conventions will have their annual dinner at the Shelburne this Friday evening at 6.30. Illinois men are requested to leave their names with Parker G. Stevens, at the booth of the Railway and Engineering Review.

### SEMI-ANNUAL MEETING OF ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.

The semi-annual meeting of the Association of Railway Electrical Engineers will be held today at the Dennis hotel. The morning session will begin at 10 o'clock and will be devoted to business. The afternoon session begins at 2.00 P. M., when addresses will be made by A. I. Totten, of the General Electric Company, and F. H. Herzsch, of the Westinghouse Electric & Manufacturing Company, on "Railway Shop Equipment." A. J. Sweet, of the Halophane Company, and L. Schepmaer, of the Safety Car Heating & Lighting Company, will talk on "United States Postal Car and Passenger Car Illumination." Informal talks on "Method of Axle Generator Control, Constant Current vs. Constant Potential," will also be given by manufacturers of axle car lighting systems.

### SIGN THE PETITION!

Manufacturers attending the conventions can sign the petition regarding a railway plank in the platforms of the two political parties, adoption of which the Railway Business Association is seeking, by stopping at the table in THE DAILY'S booth just inside the railing separating the booth from the ball room. The Railway Business Association is very anxious that all supply men who have not already signed, shall do so at once so that a large petition can be presented to the republican convention next week in Chicago.

George A. Post, president of the association, who has been presenting its views to the republican chieftains now gathering in Chicago, arrived in Atlantic City, Wednesday evening to spend a short time here. He will return to Chicago tomorrow. Mr. Post says that the petitions are being numerously signed, not merely by railway supply men, but by shippers generally. Petitions have been received signed by 600 shippers in Chicago, 400 in Pittsburg, 600 in Cleveland, etc., and a total of 2,000 names had been attached to them at latest reports, the railway plank favored by the association was outlined in THE DAILY for June 12, page 1270.

### WANTED—WESTERN BALL PLAYERS.

The Western baseball team wants two railway men and two supply men. Must be good players. Apply to Capt. Hammond.

### FOUND.

Small gold initialed pin at the Marlborough-Blenheim informal dance Wednesday evening. Apply at the office of THE DAILY.

### REGISTRATION HOURS.

The Enrollment Committee announces that its books will be open for registration purposes on Saturday from 9 a. m. until 12 noon; and from 7.30 p. m. until 10 p. m.; also on Sunday from 11 a. m. until 1 p. m.

### PURDUE DINNER.

The Purdue graduates here at the convention will get together at dinner on Saturday evening. All Purdue boys are cordially invited to attend. Please register as soon as possible with Harold A. Smith, of the Railway and Engineering Review, booth 12-14.

### CLEAN YOUR BOOTHS.

President Stafford, of the Railway Supply Manufacturers' Association, requests that exhibitors assist the committee to keep the aisles clean by having their booths swept out each evening before leaving.

Some of the projected railways from Peking, China, into the western and northwestern country have a direct relation with lines in operation and projected immediately south of the imperial capital. Of immediate importance, however, is the recent construction in Shantung and neighboring provinces, the most successful work in Chinese railway fields in 1910 being in this part of the empire. During 1910 the most notable lines completed were portions of the great German system in Shantung, which extends from Tientsin to the Yangtze river, and is generally known as the Pukow-Tientsin railway. The southern portion of the system is in operation from Pukow, opposite Nanking on the Yangtze, to Linghwaikwan, a distance of about 94 miles.



## Proceedings.

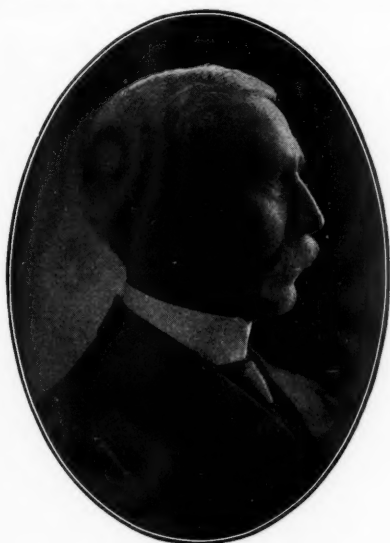
President Stewart called the meeting to order at 9.40 a. m. Thursday morning.

The President: As chairman of the committee on safety appliances, I want to say, the committee has no formal report to present. The work of the committee last year in conjunction with the Federal authorities was such that the entire case was covered, but there are some recommendations that we are making to the executive committee, the most important of which being the question as to what rules shall be adopted for handling foreign cars, which for any reason must be rebuilt or given general repairs; second, foreign cars shopped for ordinary repairs but not equipped with U. S. safety appliances; third, foreign cars stencilled "U. S. Safety Appliances" but improperly equipped.

In the past year the committee had a meeting with the chief inspector of the Interstate Commerce Commission in regard to having uniform instructions or uniform understanding, and it was found that the chief inspector made those arrangements and relieved a good many situations that were not understood alike by all inspectors. That will probably be the function of the committee in the future, to straighten out matters of that kind, and the committee asks that if any member has any suggestions to make or any questions to ask, that he do not hesitate to write the committee on safety appliances so we can get it uniform for the next convention.

### REVISION OF RULES OF INTERCHANGE.

The members and various railway clubs and organizations in the rules of interchange were asked to submit what changes were considered desirable. These have been considered and the recommendations of the committee are given under each rule. Several suggestions were received in regard to changes in Rules 98, 101, 102, 107, 116 and 117, covering the matter of changes in prices for labor and materials. These have been referred to the committee on that subject.



J. J. HENNESSEY,  
Chairman, Committee on Arbitration.

Rule 2.—The committee would suggest that this rule be change to read as follows:

"Cars (whether loaded or empty) with defects constituting a violation of the law must not be offered in interchange. The unnecessary movement of leaking tank cars loaded with inflammable materials is in violation of the law. Such cars should be repaired or have lading transferred at the nearest available point. Cars having defects for which delivering company is responsible must be properly carded when offered in interchange. Empty cars offered in interchange must be accepted if in safe and serviceable condition, the receiving road to be the judge in cases not provided for in Rules 3 and 4 and 32 to 88, inclusive.

"Owners must receive their own cars when offered home, subject to the provisions of these rules. Loaded cars offered in interchange, except those having defects constituting a violation of the law, must be accepted. The receiving line

may also reject cars not loaded in accordance with the rules for loading materials, A. R. A. car service Rule 15 to apply (see page 22) when transfer or rearrangement of load is necessary. The car transfer check authorizing the transfer

M. C. B. ASSOCIATION—AUTHORITY FOR TRANSFER OR ADJUSTMENT OF LADING.	
(NAME OF ROAD)	Date
Lading	
Transferred or Lading Adjusted.	Account of
Issued to	R. R.
Car No.	Initial
	Inspector at

NOTE.—To be printed in black on white paper in duplicate form, filled out with ink or black indelible pencil. Original to accompany bill and duplicate retained for record.

Fig. 1—Car Transfer Check.

or rearrangement of lading to be of the form shown herewith. Balance of rule to remain as at present.

"The form shown above to be modified by the addition of the words 'or lading adjusted.'"

Rule 8.—The committee would suggest that for the words "tacked on" in the fifth line the words "securely attached to," be substituted.

Rule 9.—The following suggestions are approved:  
Change the rule to read:

- |  |  |
|--|--|
| M. C. B. couplers, or parts thereof, R. and R..... | <ul style="list-style-type: none"> <li>new or secondhand.</li> <li>steel or malleable.</li> <li>size of shank.</li> <li>size of butt.</li> <li>complete, or name of part or parts.</li> <li>name of coupler.</li> <li>open or solid knuckle.</li> <li>yoke, stem or key attachment.</li> </ul> |
| Wheels and axles, R. and R.                        | <ul style="list-style-type: none"> <li>cast iron, cast steel, rolled or forged steel or steel-tired wheels.</li> <li>new or secondhand.</li> <li>cause of removal (see Rule 10).</li> <li>trucks: solid pedestal or arch bar type.</li> </ul>  |
| Journal bearings, R. and R..                       | <ul style="list-style-type: none"> <li>solid, filled or other kind.</li> <li>length of bearings.</li> <li>box number (see Rule 14.)</li> </ul>   |
| Metal brake beams, or parts thereof, R. and R..... | <ul style="list-style-type: none"> <li>make or name of beam.</li> <li>new or secondhand.</li> <li>complete, or part or parts.</li> <li>cause of renewal.</li> <li>parts or parts scrapped.</li> </ul>  |
| Brake shoes, applied.....                          | Cast or reinforced back.   |
| Triple valve, R. and R.....                        | Name of maker and type.  |

When triple valve or cylinder is cleaned, the initial of road and date of last previous cleaning must be shown. If necessary to remove load to make repairs, as specified in Rule 107, it must be plainly stated.

Rule 10.—The committee recommends that all of the first paragraph after the word "used" in the third line be omitted.

Rule 11.—The committee recommends making the rule clearer as follows: "Journal bearings having a babbit lining  $\frac{3}{8}$ -in. thick or thicker, shall be charged as filled journal bearings and not as solid journal bearings."

Rule 12.—The committee would propose the following additional paragraph: "If an intermediate line finds it necessary for safety to standardize wrong repairs, it may render bill against the car owner for the expense, and the billing repair card of such intermediate line shall be final as to the fact that such wrong repairs existed, and shall perform the same function as a joint evidence card. If the car carries repair card covering such wrong repairs, such repair card must accompany bill against the car owner. If such repair card covers items other than those corrected, the items corrected must be crossed off and the card replaced on car, but a copy of such repair card must accompany the bill against the car owner."

Rule 14.—The committee proposes that the first part of the

rule read: "Defect and repair cards (and joint evidence cards, as per Rule 12), must be securely attached to car," etc.

**Rule 18.**—The committee would suggest that this rule be modified as follows:

1. "Couplers that exceed the distance of  $5\frac{1}{8}$  in. between point of knuckle and guard arm measured perpendicularly to guard arm, must have the defective part or parts renewed to bring coupler within gage, in which case owners are responsible. (See drawing, page 11.)

2. "Cars having couplers with stem or spindle attachments or American continuous draft rods will not be accepted in interchange after September 1, 1914."

**Rule 20.**—The committee recommends that the rule be changed to read: "Cars must be maintained within the limits of standard height for couplers, measured from the top of the rails to the center line of coupler head. Any company finding cars not within the limits of standard height for couplers may repair and charge to owners. As far as possible, cars should be adjusted when empty.

"Empty cars measuring  $32\frac{1}{2}$  in. or less shall be adjusted to  $34\frac{1}{2}$  in., or as near as practicable thereto, but not exceeding  $34\frac{1}{2}$  in. Loaded cars measuring  $31\frac{1}{2}$  in. or less shall be adjusted to  $33\frac{1}{2}$  in., or as near as practicable thereto, but not exceeding  $33\frac{1}{2}$  in. When bill is to be rendered, the height of car before and after altering must be shown on repair cards."

**Rule 21.**—The committee suggests changing the rule to read: "Bills may be rendered against car owners for the cost of applying temporary running boards and hand rails to cars originally equipped with roofs or running boards to make such cars safe for trainmen."

**Rule 24.**—The committee suggests the omission of the word "new" in the first line of the second paragraph, as this provision should apply equally to secondhand wheels.

**Rule 33.**—The committee approves of the addition of "hatch covers" and "vent slides" to the exceptions in this rule.

**Rule 34.**—The committee approves the omission of this rule.

**Rule 35.**—The committee would recommend that the rule be changed to read: "After September 1, 1914, cars equipped with couplers having stem or spindle attachments, or American continuous draft rods, will not be accepted in interchange."

**Rule 36.**—The committee suggests that this rule be eliminated.

The committee would recommend that the heading to combinations (Rules 37 to 42, inclusive) be changed by the addition of the words "and requiring repairs or renewals."

**Rule 40.**—The committee proposes that the rule read as follows: "Damaged end sill, accompanied by damage to two longitudinal sills."

**Rule 42.**—The committee approves changing the rule to read: "Damaged corner and end posts, if necessitating the renewal of more than three posts," and would suggest the following note: "Damage as used in the above combinations is understood to mean injury so serious as to render renewal or repairs necessary to the part or parts mentioned."

**Rule 48.**—The committee would recommend the rule be changed to read: "Side doors, end doors, roof doors, grain doors, water troughs and attachments and all inside parts or all concealed parts of cars missing or damaged under fair usage," etc.

**Rule 50.**—The committee would recommend the addition of the words "as provided for in Rule 20" to make reference to the provision in this rule.

**Rule 52.**—The committee would suggest the following change in the fourth paragraph of this rule: "On cars stenciled United States Safety Appliances Standard, or on cars stenciled 'United States Safety Appliances,' lag screws must not be used where bolts or rivets are required by law." Also the omission of the bracket from this paragraph of the rule.

**Rule 53.**—The committee suggests making the rule read: "All freight cars offered in interchange must be equipped with air brakes, angle cocks, quick-action triple valves, M. C. B. standard  $1\frac{1}{4}$ -in. train line and pressure retaining valves."

**Rule 54.**—The committee approves the suggestion of adding to this rule the words, "that require repairs or renewals."

**Rule 56.**—The committee approves the suggestion to eliminate this rule.

**Rule 59.**—The committee suggest the elimination of reference to Rule 56, on account of the suggestion that it be omitted. Also suggest including "broken brake pipes and cross-over pipes due to insecure fastenings" after the words "rust or seams" in third line.

**Rule 60.**—The committee approves the changing of the last paragraph to read: "Triple valves cleaned must be tested in accordance with the M. C. B. code of tests for repaired triple valves."

**Rule 62.**—The committee approves changing this rule to

read: "Damage of any kind to truck due to unfair usage, derailment or accident that requires renewal or repairs."

**Rule 66.**—The committee would recommend that the second paragraph of this rule be changed to read: "After September 1, 1915, cars equipped with brake beams other than all metal will not be accepted in interchange."

**Rule 69.**—The committee approves the omission of the words "or if it extends  $\frac{1}{8}$  in. past the center of flange."

**Rule 70.**—The committee approves the suggestion that the words "or steel tired" be omitted from the third paragraph.

**Rule 82.**—The committee approves eliminating the last two lines of this rule.

**Rule 101.**—To conform to the provisions in the proposed change in Rule 20, the committee would recommend the following change in prices:

Altering height of one end of car, over or under center plates or on top of body bolster, net..... \$1.25

Altering height of one end of car, shimming springs, net .75

**Rule 107.**—The committee would recommend the addition of the following item:

Draft timber bolts, tightening up, on one end of car,  $\frac{1}{2}$  hour ..... \$0.12

**Rule 108.**—The committee suggests that the second paragraph read as follows: "No charge to be made for adjusting brakes, angle cocks or tightening unions."

**Rule 110.**—The committee suggests this rule be changed to read: "Applying center plate or center plate bolts when car is raised to standard height adjusting center plates or body bolster, at same end of car."

**Rule 115.**—The committee would recommend that the word "nearest" in the eighth line of first paragraph be changed to "designated." Also change second paragraph to read: "Except in cases of trucks of 50,000 lbs. capacity or less, where the railway company destroying the body of car may elect to retain the trucks and settle for them at their scrap value, except that such of the wheels, axles or all metal brake beams as are good for further service, must be credited at their secondhand value under the M. C. B. rules. This paragraph will not apply to trucks belonging to individual ownership."

Also an additional paragraph reading: "The underframes of damaged steel and steel underframe cars when intact and in serviceable condition may be forwarded to owner on defect card."

**Rule 122.**—The committee would recommend the following change in this rule: "Companies shall promptly furnish to each other, upon requisition, and forward, freight charges F. O. B. point of shipment, material for repairs of their cars damaged upon foreign lines," etc., balance of rule to remain as at present.

**Rule 123.**—It has been suggested that rule state which party to dispute shall prepare abstract. In case of any dispute or question arising under the rules between the subscribers to said rules, the same may be submitted to this committee, through the Secretary, in abstract, to be signed by both parties to the dispute, to receive consideration by the arbitration committee. The abstract should set forth: An agreed statement of facts; argument of plaintiff and argument of defendant.

The abstract should consist of not more than three typewritten pages, letter size, single space, and should be signed by both parties to the dispute. Balance of rule to remain as at present.

**Rule 131.**—This Code of Rules shall take effect September 1, 1912.

**Page 105. Rule 2. Item (C).**—Under item C, Rule 2, of the passenger car code of rules, page 105, the committee would suggest the addition of "shades" and "belts" under the heading of electric lighting, believing these two items should be included in line expenses proratable.

JOS. W. TAYLOR,  
Secretary.

The Secretary: In accordance with the request of the arbitration committee, a meeting was held yesterday afternoon at 4 o'clock, at which time a large proportion of the members of the association in attendance at this convention were present. The object of the meeting was to consider the report of the arbitration committee in reference to proposed changes in the rules of interchange. As a result the arbitration committee would recommend the following changes in its recommendations:

**Rule 2.**—Cars having defects for which the delivering company is responsible must be properly carded when offered in interchange. Empty cars offered in interchange must be accepted if in safe and serviceable condition, the receiving road to be the judge in cases not provided for in Rules 3 and 4, and 32 to 88, inclusive. Owners must receive their own cars when offered home for repairs, subject to the provisions of these rules. Loaded



cars offered in interchange must be accepted, with the following exceptions:

(a) Cars (whether loaded or empty) having defects in violation of the Safety Appliance Acts, must not be offered in interchange.

(b) Leaking tank cars containing inflammable liquid must be repaired or transferred without any unnecessary movement or at nearest available point with least possible risk. Also, cars loaded with explosives shall be handled in accordance with the regulations of the Interstate Commerce Commission.

(c) Cars improperly loaded, when not complying with the rules for loading material.

(d) Lading of open cars when dimensions of lading are in excess of published clearances of roads over which the shipment is destined.

(e) When cars cannot pass approved third rail clearances of American Railway Association.

American Railway Association car service rule 15 to apply (see page 83) when transfer or rearrangement of lading is necessary.

The car transfer check authorizing transfer or rearrangement of lading to be of the form shown under rule 2 of the report.

When the lading is transferred by the receiving line the car, when empty, may be returned to the delivering line.

(Last paragraph as at present.)

Also, that American Railway Association rule 15, as shown on page 88 of the rules of interchange, be changed to conform to the rule as amended by that association, reading as follows:

Rule 15. Unless otherwise agreed, the cost of transferring the lading of freight cars or rearrangement of lading at junction points shall be settled as follows:

First:—The delivering road shall pay cost of transfer or rearrangement.

(a) When transfer is due to defective equipment that is not safe to run according to M. C. B. Rules.

(b) When transfer or rearrangement of load is due to contents being improperly loaded or overloaded according to M. C. B. rules or the Interstate Commerce Commission regulations for the transportation of explosives and other dangerous articles by freight and by express, or when dimensions of the lading of open cars are in excess of the published clearances of any of the roads covered by the routing.

(c) When transfer is due to delivering line not desiring its equipment to go beyond junction points.

(d) When cars cannot pass approved third rail clearances of the American Railway Association.

Second:—The receiving road shall pay cost of transfer or rearrangement:

(e) When cars cannot pass clearances, except as provided in paragraph (d) or when cars and lading exceed the load limit or cannot be moved through on account of any other disability of the receiving line. (Note:—The word "cars" covers both closed and open cars but not lading on open cars. The words "load limit" refer to the limits placed on bridges, tracks, etc., and not to car capacity.)

(f) When the receiving road desires transfer to save cost of mileage or Per Diem.

Rule 20.—As agreed, the committee would change the word "head" to "shank," in the third line of the first paragraph of its recommendation to conform to the terms employed by the Interstate Commerce Inspectors.

Rule 20.—Inasmuch as weighing associations do not now stencil the new light weight on the car, the committee will suggest to the executive committee that the matter should be preferably referred to the American Railway Association from this association, so that any weighing bureau or association light weighing cars shall, in addition, properly stencil the new light weight on the car. In the meantime the present rule should remain as it now reads.

Rule 64.—The committee would suggest that the words "and nuts" in last line of the rule be omitted.

Rule 91.—The committee will refer the proposed changes in this rule to the executive committee, with the request that it will confer with the accounting officers association, and advise whether they would concur in the proposed changes in the rule leaving the rule as it now stands.

Rule 98.—The committee would suggest that in the last line, the dimension  $\frac{1}{4}$  in. be changed to  $\frac{1}{8}$  in.

Rule 102.—The committee would suggest that the last sentence in this rule be changed to read:

No charge to be made for lettering, except when done to preserve the identity of the car and not necessitated by other repairs.

Rule 110.—The committee finds that the word "by" has been omitted between the words "height" and "adjusting" in the second line of its recommendations, and suggests that it be placed there.

The question was raised as to the proper height of pas-

senger car couplers. The committee will refer this to the executive committee for decision.

JOS. W. TAYLOR,  
Secretary.

F. W. Brazier (N. Y. C. & H. R.): I move that the report of the arbitration committee be accepted and adopted. (The motion was seconded and carried with no discussion.)

The decisions of this committee were also accepted and approved.

A rising vote of thanks was given the committee for the excellent work they have done in the past year.

#### PRICES FOR LABOR AND MATERIAL.

The special committee appointed to suggest additional prices or modification of present prices as given in the rules of interchange, to cover all classes of cars, prepared a circular of inquiry requesting recommendations. Replies were received from only 32 railways and 8 private lines.

The following report is submitted:

The committee recommends no action on Rule 116; committee not being certain that they have authority to take this matter up, though mentioned in circular of inquiry, and very few suggestions as to changes were received.

The entire subject of prices for labor and material on passenger equipment is not reported upon for the reason that very few roads made suggestions in regard to changes and on account of the many changes now taking place in the construction of passenger equipment we were unable to give this subject the



F. H. CLARK,  
Chairman, Committee on Prices for  
Labor and Material.

necessary attention, and recommend it be given further consideration.

The committee has, however, accepted the recommendations of chairman of Master Car Builders' train lighting committee, which are embodied in report herewith.

Rule 98. Bills rendered for wheels and axles shall be in accordance with the following schedule of prices for material, with the proper debits and credits:

	PRESENT PRICES.			RECOMMENDED PRICES.		
	New.	Second-hand.	Scrap.	New.	Second-hand.	Scrap.
One 36-in. cast-iron wheel....	\$10.50	\$7.75	\$5.25	.....	.....	.....
One 33-in. cast-iron wheel....	9.00	7.00	4.75	.....	.....	.....
One 33-in. forged or rolled steel wheel.....	23.00	.....	5.00	\$21.00	.....	\$4.50
One axle, 100,000 lbs.....	21.50	11.75	7.75	20.00	\$12.00	7.50
One axle, 80,000 lbs.....	17.75	10.00	6.50	16.00	.....	.....
One axle, 60,000 lbs.....	14.00	7.75	5.25	.....	.....	.....
One axle, 50,000 lbs. or under.	11.50	6.25	4.25	10.00	5.00	3.00
And with an additional charge for all labor for each pair of wheels and axles removed from all arch bar trucks of.	1.75	.....	.....	2.00	.....	.....
And from all solid pedestal trucks of .....	2.00	.....	.....	2.25	.....	.....

If new wheels and axles are substituted for second-hand wheels and axles, proper charges and credits shall be allowed, although such substitutions be made on account of only one loose or defective wheel or a defective axle with the following exceptions: In case the owner of a car removes a damaged wheel or axle, no

charge shall be made for any difference in value between the parts used and those removed that are not damaged.

Removing, turning and replacing a pair of forged steel or steel-tired wheels: \$3.25 for pedestal type of truck and \$3 for arch bar truck.

It is recommended that this paragraph be changed to read:

"Labor turning per pair forged steel or steel-tired wheels, \$1.25.

"The price for new forged or rolled steel wheels shall only apply to such wheels having treads  $1\frac{3}{8}$  inches thick or over, measured from base line of tread to the condemning limit which is  $\frac{1}{4}$  inch above witness groove. For wheels having treads less than  $1\frac{3}{8}$  inches thick as described, a reduction shall be made in price at the rate of 75 cents per  $\frac{1}{16}$  inch thickness (on radius) of tread.

"Any loss or increase of service metal on forged or rolled steel wheels shall be credited or charged at the rate of 75 cents per  $\frac{1}{16}$  inch thickness (on radius) of tread."

The necessary information must be given in all cases, as proposed. In cases of slid-flat wheels,  $\frac{1}{16}$  in. for loss of service metal will be allowed for flat spots  $2\frac{1}{2}$  in. long and  $\frac{1}{16}$  in. for each additional inch or fraction thereof.

It is recommended that this paragraph be changed to read:

"In case of slid-flat wheels,  $\frac{2}{16}$  in. for loss of service metal will be allowed for flat spots  $2\frac{1}{2}$  in. long, and  $\frac{1}{16}$  in. for each additional inch or fraction thereof."

[The rest of the report is given over to prices of Rules 101, 107 and 111.]

On page 108, Rule 12, the last paragraph should be changed to read: "On electrically lighted cars equipped with storage batteries or axle device furnished to foreign roads, where no agreement is made, a charge of 75 cents per car per day shall be made for the use of the electrical equipment."

The report is signed by: F. H. Clark (B. & O.), chairman; G. E. Carson (N. Y. C. & H. R.); C. F. Thiele (P. C. C. & St. L.); Ira Everett (L. V.); B. Julien (U. P.); S. T. Park (C. & E. I.), and H. E. Passmore (T. & O. C.).

#### DISCUSSION.

J. J. Hennessey (C. M. & St. P.): I move that the recommendations of the committee on prices for labor and materials be accepted as prices of the rules of interchange. I have had some years of experience on this rules committee, and the amount of labor that is put into this report is not fully realized by the average member who has not undertaken a similar job.

A. W. Gibbs (Penna.): The committee on tank cars has a price recommendation in regard to safety valves, and also in regard to the periodical retesting of safety valves. I wish to ask for permission to submit these prices, which have been arranged by trial, and if approved by the committee, that they may be included in the list of prices submitted by them.

F. H. Clark (B. & O.): The committee will be glad to receive and consider the prices and take such action as may seem necessary.

J. J. Tatum (B. & O.): I want to say before the motion is submitted, that it was found necessary, due to some changes made by the arbitration committee to all an additional item to Rule 101, which will read as follows:

"Stenciling on sides and ends when done to preserve identity of car and not necessitated by other repairs, net price 50 cents."

The committee's report was then accepted.

#### RULES FOR LOADING MATERIALS.

The committee reports the following recommendations for changes in the present rules for loading materials. The modifications, in the main, have reference to reductions in amount of material required to build up loads, having due regard for the safety of cars as well as lading in transit. A good deal of information has been collected from railways and shippers in connection with the several suggestions that are recommended.

Attention is called to Rule 6, and with particular reference to its apparent conflict with paragraph D of the American Railway Association Rule 15, some allusion to which was made in the report of 1910.

The paragraph reads as follows:

"The receiving road shall pay cost of transfer or rearrangement: (d) When cars exceed load limit or can not pass clearances or be moved through on account of any other disability of receiving line."

After the presentation of the 1911 report the committee recommended to the arbitration committee the acceptance of the last suggestion offered by the American Railway Association, which was to add the following paragraph to Rule 6:

"Should it become necessary to transfer or rearrange the

lading in transit on account of excess width or height of lading, see American Railway Association car service Rule 15, paragraph D."

This was done under the impression that the supplement would remove the apparent conflict, still leaving Rule 6 in such shape as to allow the shippers to build up loads within reasonable limits, without infringing upon the principle involved in American Railway Association Rule 15. But the application of the second paragraph or added portion of Rule 6 soon demonstrated the wisdom of the rule as it originally stood prior to the change last year, which required that the load be built up with reference to the clearances of the roads over which the lading is routed. In the light of this development the General Managers' Association, of New York, at their meeting held in New York, December, 1911, concluded to suggest to the American Railway Association certain modifications to their Rule 15, having further in mind that in the event of the American Railway Association adopting such changes the Master Car Builders should be requested to modify Rule 6 for loading materials, erasing therefrom that portion of the rule which was added in 1911, which would leave the rule practically in its original shape. The committee has no further reference to make relative to Rule 6 until the matter is disposed of by the American Railway Association.

RULE 10.—Wooden cars of light capacity when used as idlers between cars of heavier capacity are liable to break down when



A. KEARNEY,

Chairman, Committee on Rules for Loading Materials.

placed in a train composed of heavier capacity cars, in case of sudden stops or emergency application of the brakes; a paragraph, therefore, should be added to Rule 10 reading as follows:

"If the idler is a flat car of wooden construction, its capacity must be not less than that of the carrying cars."

RULE 23.—The first sentence of this rule should be changed to read as follows, so as to also cover the placing of sliding as well as bearing pieces:

"Bearing and sliding pieces must never be placed between bolster and end of car, unless special provision is made therefor in detail instructions."

RULE 43.—This rule should be changed to read as follows:

"The lading overhanging the idler must be governed by restrictions contained in General Rule 11 so that overhang will not exceed clearances in curving."

RULE 45.—The last portion of this rule should be changed to read as follows:

"Where the pile of lumber on the idler exceeds 20 ft. in length, 4 stakes on each side must be used, 3 on each side being sufficient for shorter piles to conform to Rule 34."

RULE 55.—We find that some of the Canadian roads have flat cars equipped with permanent chains and short stakes, which are used for the handling of logs, and having ascertained that logs loaded on these cars with this method of binding the lading are safe, we would recommend the addition of a note to that effect immediately after Rule 55 so as to allow the use of this equipment for handling the material in question.

RULES 56 AND 57.—These two rules should refer to flat as well as low-sided gondola cars and, therefore, should be changed to read as follows:

"RULE 56.—When material of this kind is loaded on flat or



gondola cars with sides less than 30 in. high, and lading does not exceed 4 ft. in height measured from floor, and the lading is not loaded in pyramidal form, the stakes must be as high as the lading and must be tied together at the top with not less than eight strands equal to four wrappings of good  $\frac{1}{8}$ -in. diameter wire and must be tight. Stakes must be sound hardwood, free from knots and of the dimensions specified in General Rule 12."

"RULE 57.—If the material is loaded on flat cars or gondola cars with sides less than 30 in. high, to a height more than 4 ft. measured from floor, opposite stakes must be bound together with wire at about one-third of the height above car floor after one-third of the load has been placed on the car, and in such a manner that when the remaining load is placed on the car the wire will have a tendency to draw the tops of the stakes toward each other. The middle as well as the top wrappings of wire must consist of not less than ten strands equal to five wrappings of good  $\frac{1}{8}$ -in. diameter wire and must be tight. Bearing-pieces may be placed between the lower and upper sections of load to facilitate application of wire after all the lading has been placed on the car. Stakes must be sound hardwood free from knots and of the dimensions specified in General Rule 12. Stakes must incline toward center of car a total of about 12 in. before load is placed on car, and in no case will they be allowed to incline away from center of car after the car is loaded. The inspector must assure himself that all wiring is tight before load is moved."

RULE 58.—The size of the 3 pair of live saplings mentioned in the first sentence of this rule should be  $4\frac{1}{2}$  in.

Also add the following paragraph to this rule:

"When lading is in two piles not over 20 ft. in length and ends of piles are interlaced at center of car, there must be not less than five pairs of stakes for total length of load. If the length exceeds 20 ft., there must be not less than six pairs of stakes for total length of load. The ends of poles must extend not less than 18 in. beyond the center stake."

RULE 81.—Some suggestions have been made with reference to handling twin loads of flexible material where the shipment is light and can be handled safely without the use of blocking prescribed for full loads, and in order to make this entirely clear, the following paragraphs should be added to this rule:

"81-A. If the total weight per bolster does not exceed 10,000 lbs., the center post and bolster cross braces may be omitted, provided the bearing-piece is not less than 8 in. x 10 in.

"81-B. For twin loads of plates with two bearing-pieces and two or four sliding pieces, if the total weight does not exceed 20,000 lbs., or 10,000 lbs. per bearing-piece, the center post and bolster cross braces may be omitted, provided the bearing pieces are not less than 8 in. x 10 in.

"81-C. For loads less in weight than those specified in paragraphs A and B, the dimensions of bearing-pieces may be proportionately reduced as per Rule 29."

RULE 103.—In order to bring the weight of the lading nearer to the allowable limit for double and triple loads, the following paragraphs should be added to provide that girders, either of the solid or latticed type ranging from 10,000 to 30,000 lbs. each in weight, shall be so arranged that two or more can be loaded side by side on pivoted bolsters:

"Two or more girders may be loaded vertically, side by side, provided they are bolted together near pivoted bolsters, with proper spacing-pieces between them, in such a manner that they act as one girder."

Fig. 56.—It is claimed that the method of loading pipe 24 in. or more in diameter on a flat car in accordance with the present rules is wrong on account of there being no provision for holding the second and top tiers of pipe from sliding off endwise. Pipe of this description should be loaded with the bell ends

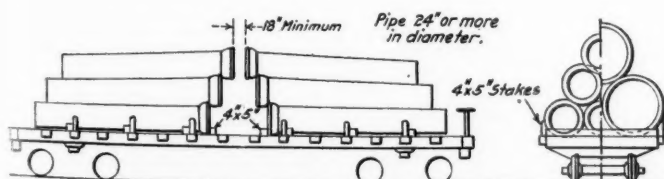


Fig. 1—Method of Loading Pipe on Flat Cars.

toward the center of car, the bell ends of the second tier overlapping the first toward center of car. There should be at least 18 in. clearance between the bell ends of the top tier and when loaded in this manner the end blocking is not required, therefore Fig. 56 should be changed as shown in Fig. 1 herewith.

RULE 121.—Due to objection on the part of the shippers to the size of blocking now specified, and due also to the fact that blocking of smaller dimensions can be used without interfering

with the safe movement of boiler shells and tanks, this rule should be changed to read as follows:

"Lading of this description 8 ft. or less in diameter, when loaded on single flat or gondola cars, should be substantially chocked with side blocking equal in height to 1-7 the diameter of the shell, providing that blocking of more than 10 in. in height will not be required. End blocking to be not less than 4 in. in height as shown in Fig. 2 herewith.

"Lading over 8 ft. in diameter, when loaded on single flat or gondola cars with sides less than 30 in. in height, must be sub-

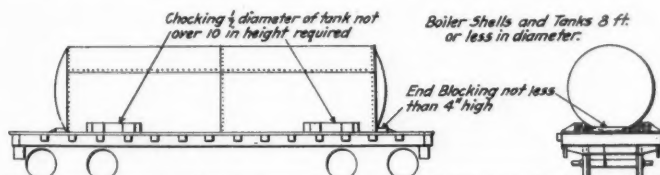


Fig 2—Method of Loading Boiler Shells and Tanks; 8 Ft. or Less in Diameter.

stantially chocked with side blocking not less than 10 in. in height and backed up by the use of stake pockets, and in addition to this must be secured with 2 bands of not less than  $\frac{3}{4}$ -in. round iron or flat bands of equal section. End blocking to be not less than 4 in. in height."

"When loaded in gondola cars with sides 30 in. or over in height the bands will be unnecessary, but precaution with reference to blocking must be taken as specified for lading 8 ft. in diameter."

"When such lading is placed upon 2 or more cars as a tandem shipment it should be secured with 2 bands of not less than  $\frac{7}{8}$ -in. round iron or flat bands of equal section, in addition to the prescribed blocking."

"Steel tanks, lined or unlined, in sections weighing not over 2,500 lbs. per section, 8 ft. or less in diameter, when loaded on single flat or gondola cars, must be substantially chocked on each side with blocks not less than 6 in. in height and of sufficient length and width so that they may be securely spiked to the floor of the car. End blocking to be not less than 4 in. in height and of sufficient length to provide for proper bearing area against head of tank or shell and to be securely spiked to the floor of the car. If more than 8 in. in diameter the same side and end chocking is to be used and in addition each tank or part of tank must be secured with 2 bands not less than  $\frac{1}{2}$  in. x 2 in. in section passing over the top and properly secured to the floor or stake pockets of the car. In lieu of the bands over the top of the shell the same may be secured to the floor of the car or stake pockets by straps of  $\frac{3}{4}$ -in. round iron or equal section bolted to the flange of the tank or shell with not less than 2 bolts, the lower end of the strap passing through the floor or stake pocket.

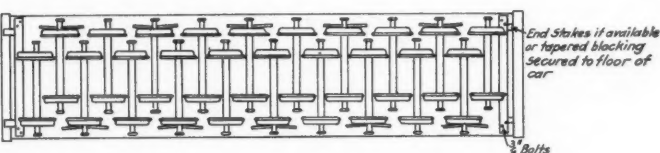


Fig. 3—Method of Loading Mounted Wheels.

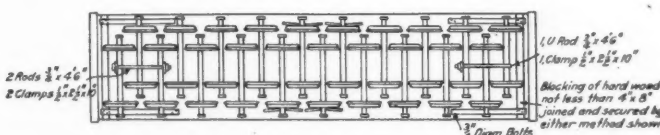


Fig. 4—Method of Loading Mounted Wheels.

A new Rule 122-A should be added to cover the shipment of mounted wheels on flat cars, as follows:

"122-A.—Mounted wheels may be loaded on flat cars as shown in Figs. 3 and 4. If Fig. 3 is followed the end blocking must be not less than 8 in. by 8 in. in section in one piece, or made up of two pieces of hardwood of equivalent section and secured by end stakes in addition to bolts through floor, or by separate blocking pieces secured to floor and end sill with  $\frac{3}{4}$ -in. bolts. In addition to this, for a full load, five pair of wheels must be secured by 2 in. by 4 in. hardwood braces as shown, spiked to floor of car.

"If Fig. 4 is followed, three pairs of wheels at either end of load are to be tied together, using  $\frac{3}{4}$ -in. rods with clamp plates or  $\frac{3}{4}$ -in. U-rod and plate as shown, and blocking at ends and along sides of hardwood not less than 4 in. by 8 in., joined and bolted to car floor by either of the methods shown in Fig. 4."

The two new figures referred to in new Rule 122-A should be inserted in the code, immediately following Fig. 66 and ahead of Fig. 66-A.

RULE 124.—The second sentence to read as follows (The italics show the words added):

"Cars without doors, and containing freight of a character requiring it, must have the lading protected from falling or rolling out of car by strips or slab wood, not less than  $1\frac{1}{2}$  inches thick at center, nailed to inside of door posts, and sufficiently close to floor of car and to each other to prevent lading from passing between them."

The present prescribed practice of loading triple loads of long flexible material (angle irons and plates) is open to criticism, but the committee has not had time to make sufficient study of the situation with a view to changing the present rules.

During the current year the committee has received a great deal more assistance than heretofore and it is hoped that it will increase, for it is doubtful if the committee is getting the benefit of the general experience or the many ideas arising in handling commodities under local conditions which must necessarily develop from time to time.

The report is signed by:—A. Kearney (N. & W.), chairman; R. E. Smith (A. C. L.); C. H. Osborne (C. & N. W.); W. F. Kiesel, Jr. (Penna.) and L. H. Turner (P. & L E.).

#### DISCUSSION.

A. W. Gibbs (Penna.): Does the report include the requirement that the car shall comply with the clearances for the electric third rail, which was adopted by the American Railway Association at its last meeting held in New York last month.

A. Kearney (N. & W.): I do not think that would conflict with rule No. 6, because this places the burden upon the railway having the disability.

Since presenting this report we have received correspondence from the Ohio Quarries Company and the Cleveland Stone Company, in reference to loading stone. We have also had some correspondence with the National Tube Company, and L. C. Bihler, traffic manager of the Carnegie Steel Company. I would like to ask if it will be satisfactory to have the committee go over the questions submitted to us, and then submit the conclusions with the report to the members of the association for letter ballot.

The subjects which Mr. Bihler speaks of are: Plates too wide to go in a single car, overhanging loads in single cars and plates too wide to be loaded flat on gonolas, but may be loaded flat on flat cars, the load being held in place by clamps extending across it, secured by bolts running through the stake pockets. There is no reference to the last item in the present rules either in text or by sketch. When the committee takes hold of this matter they will fully consider all the points. It will be necessary of course to make a safe load.

C. E. Chambers (C. of N. J.): I wish to make a few remarks in connection with the report which has been submitted. I want to have it thoroughly clear in my mind that the recommendation of this committee is that rule 15 of the American Railway Association, and our Rule 6 will put the expense on the loading road, where the loading road does not load according to the clearances, etc., on the lines on which this car must pass. Is that the point?

Mr. Kearney. If you will recollect, and no doubt you will remember, about 2 or 3 years ago we were asked to modify rule No. 6, so as to make it harmonize with the American Railway Association rule No. 15. Rule 15 placed the responsibility upon the road having the disability. That meant that if you load a car, it does not matter how wide, and turn it over to some other road they would be required to take that car, and they would be required to carry the burden, and simply because they could not handle the car on their line because their clearance limits were apparently too small, they would be responsible for the incorrect load-

ing of the car. At a meeting of the General Managers' Association of New York, it was thought that that was un-air, and I might say here, it is the position of the committee that this is unfair, we have always considered that such a ruling created a most unreasonable situation. The General Managers' Association at the meeting to which I have referred, decided to except the loads on open cars, which brought it right back to the point we have been contending for for some two years. That means that if you load the car in excess of the clearance limits of the line over which the car is routed, you make the transfer of the load you as the delivering line.

Mr. Chambers: I want to be perfectly clear on that, because it is a matter of great importance to the Central of New Jersey. We are down on the Seaboard where we get cars from all the roads in the country, and deliver many cars to roads which have all these clearances, and it meant a great deal to us if we had to accept that.

C. A. Schroyer (C. & N. W.): I move the acceptance of the report as a whole, with the supplemental matter presented by the chairman of the committee, and that the recommendations of the committee be submitted to letter ballot.

The motion was seconded and carried.

#### DAMAGE TO FREIGHT CAR EQUIPMENT BY UNLOADING MACHINES.

The standing committee on rules for loading materials was instructed to investigate the damage to freight-car equipment handled through dumping or unloading machines, and reports that it finds very valuable work has already been done in the same direction by several railways whose equipment, in rather larger proportions, has been handled through such machines, and as a result has sustained considerable damage.

The Pennsylvania and the Lake Shore & Michigan Southern took hold of the question some time ago and were very successful in locating several fouling points and parts throughout a number of unloading machines responsible for damage to cars.

Some time ago a committee was appointed on the Pennsylvania to investigate the subject and to make observations where some of the larger unloading machines were in use; they found that more than 95 per cent. of the cars were damaged in one way or other as they were handled through the machines, and further that the safety appliances were damaged on something like 32 per cent. of the cars.

It seems this situation arose principally through lack of uniformity in unloading machines as well as in cars, and that the greatest percentage of damage is occasioned by the condition and relative position of the clamps, also the breast plates, blocks, etc., against which the cars rest while being rotated in the machines.

It has been the thought of the committee to secure plans from manufacturers showing the relative position of the bearing points assumed by the cars as they are handled in the machines and then develop a composite diagram showing the relative position and limitations of such areas. It has also been the idea that if it will be possible to gradually reduce the increasing variety in car designs in such parts, at least as foul the lines and areas as might be determined upon, a great deal will have been accomplished toward reducing the expense now incurred on account of damage to cars, and at the same time minimize delays to equipment.

It was hoped by this time more information would be secured with relation to dumping machines, also composite diagrams from all roads showing the various classes of freight equipment likely to be used in such machines, believing that with complete information along this line some headway might be made by putting the respective composite plans together into one large sheet so as to show to the builders of machines, as well as to railways and car builders, the bearing areas they have each independently appropriated.

The two phases of the question, namely, the one relating to the design of the machine, as well as the car, are so intimately associated that the best results are only to be accomplished by endeavoring to solve the two problems together; but to what extent it is going to be possible to do this remains to be seen. Although the committee has received assistance from some of the railways as well as the manufacturers of unloading machinery, they feel confident that the field has not been covered, and, therefore, the work is still incomplete.

The work of the committee seems to show that so far as the types of unloading machines are concerned, there are practically three schools of design to meet. While the various types differ somewhat in detail, the general arrangement or systems are represented by the three following descriptions:

First: One in which the car is run onto a supporting track,



which slides transversely on a cradle, being held in place by clamps from underneath when the machine is in its normal position. Four chains are passed through hollow hook clamps to counterweights on the opposite side of the machine and are attached to the supporting track. The hook clamps move vertically in guides on the cradle sides, and are held at a height sufficient to clear any car, by means of vertical rods which extend to seat blocks underneath the cradle. When the cradle is raised the cams disengage and the supporting track is pulled over by the counterweights until the weight of the car braces itself against the cradle side. The hook clamps fall by gravity until they have assumed a bearing on the top flange of the car.

*Second:* One in which the car is run onto a supporting track which tilts on a horizontal shaft until the car has a bearing on the cradle. This arrangement has chains and hook clamps as above described, but the latter are anchored in the cradle side instead of to the supporting track.

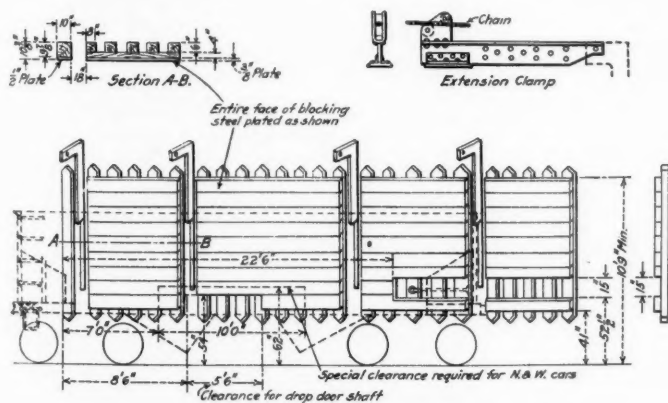
*Third:* One in which the supporting track is stationary, and the cradle side is moved inwardly and up against the car by pistons.

In all three types of machines the clamping arrangements are quite similar, consisting of hooks and clamps. A great deal of damage now sustained by the equipment is due to the manner in which the car is seized by the clamps and other apparatus belonging to the dumper, and the bearing the car assumes up against the side of the cradle, also in some instances on account of clamps being missing and chains alone being used to hold and steady the car. In some machines the cradle sides are constructed with insufficient bearing surface for the car to rest against, or they have bearing surfaces fouling the ladders, grab-irons and other parts of the car as it is being rotated in the unloader.

In the revolving type first described, the lifting as well as the rotating motion of the machine carries the car sidewise until the car sides rest up against the cradle, regardless of the width of the car. This is for the purpose of supporting the car on its wheels and on one side in the rotating movement.

There was a joint committee representing several roads sent out not long ago to examine a number of dumping machines, and their report was to the effect that they considered it possible to readily modify the cradle and blocking of the first two types of machines so that the safety appliances and other parts would be subjected to little chance of being damaged. A modification in the third type, however, would seem to be more extensive.

Plans are shown herewith giving recommended dimensions for cradle sides, which it is believed will diminish, to a very



Recommended Dimensions for Cradle Sides.

large extent, the damage to cars, provided each car is properly spotted. The support of the sides of the car consists of four sections, each composed of 6 in. by 8 in. vertical pieces, upon which are carried horizontal boards 4 in. thick fastened thereto, and plated with  $\frac{3}{8}$ -in. steel. The proposed design of extension clamps is shown in detail in the illustration.

The cars are intended to be spotted so that the ladder end is clear of the end section. The two sections at the opposite end are cut out to provide clearance for the side handholds for cars of various lengths. The dotted lines covering part of Sections 1 and 2 show the amount that must be cut out for Norfolk & Western cars where the drop door rigging is located rather high and spaced farther apart than on many other classes of cars. This recess need not be provided except on machines in territories where such cars are handled.

The committee, in submitting this report of progress, states that as the subject is of such wide importance it should have more time.

The report is signed by:—A. Kearney (N. & W.), chairman; W. F. Kiesel, Jr. (Penna.); R. E. Smith (A. C. L.); C. H. Osborne (C. & N. W.) and L. T. Turner (P & L E.).

Mr. Kearney presented the report, and in connection therewith said: Since preparing this report, I have talked over with some of the manufacturers of unloading machinery, this subject, and we discussed the matter at considerable length. They have all expressed themselves as being willing and anxious to help the committee in its work.

#### DISCUSSION.

H. La Rue (C. R. I. & P.): We are concerned with these unloading machines in the West. The mineral products in the West are being developed, especially along the line of the erection of cement buildings. The factories are placed, and the limestone quarries are at quite some distance from the factories, and the cars are loaded with limestone at the quarries and then taken to the factories, and they are now using dumping machines, of course, in unloading the limestone, in all classes of cars, and we are finding serious damage done to the cars by the unloading machines. I have seen no reference in the report, nor have I yet had an opportunity to find out from the railways on the Lake ports who is responsible for the damage done to the cars by the unloading machine. I would like to hear something on that point.

I. S. Downing (L. S. & M. S.): In reply to Mr. LaRue, I will say that I happen to be on a committee that is investigating this subject in the Lake territory. We handle a good many Norfolk & Western cars, which require a special provision made in the blocking of the unloader to take care of the winding shaft. When the car is turned on its side, the shaft would sometimes project beyond the side and shove the side of the car in. This occurred on cars of the Pennsylvania line, and the Pennsylvania line was held responsible for that damage. There is no use in trying to collect from the people who own the machines or the company which operates them. Generally the railway companies own the machines and lease them to the people who operate them. The damage has not been done in connection with the kind of a cradle, which is shown in the report of the committee, but with the old style of machine that has a plunger which is forced out of the side of the car, out by air pressure, and that forces the side of the car in. There are two or three of these machines used in the Pittsburgh district.

Mr. Downing: It is very important that some general practice be adopted. The steel people and the coal people seem to be willing to do anything we want, but they do not want to have to change this blocking every six months. The blocking which is shown here solid, we feel absolutely sure will take care of the safety appliances. It is gained in on one end to take care of the handle. On the outer span the ladder clears the cradle. In order to apply these appliances shown, it will be necessary for some of these machines to be reinforced in the cradle which is quite a little job and involves some expense. In building cars for this territory, the designer should consider the cradles on these large machines because they cannot be changed to suit the conditions called for in a few cars that some fancy designer may get up.

R. L. Kleine (Penna.): The design which the committee presents I feel is a good one, in that it presents a plane surface. There is one thing in connection with the design, and that is the reinforcing plate, which they apply to the face of the planking. An objection has been raised to that feature at Lake points and tidewater ports in winter weather for the reason that the load would be liable to slip along these plates, whereas that would not be the case if they had wooden blocking. But I feel that the design presented is one which will avoid a whole lot of damage to cars. The design should be applied to a number of cradles, so that we could get some experience with regard to its service. Also the committee should be continued so that they can go further into the question, and make some recommendation as to necessary changes in the Brown dumping machine which have the plungers and which are now badly damaging cars.

John J. Tatum (B. & O.): We have had some experience in Pittsburgh and on the Lake ports with dumping machines, and we found about three years ago that the dumping machines were damaging many of our cars on account of the method of blocking arranged on the machines. As a result of our investigation we have had the blocking so located that it has avoided a great deal of that damage to the cars, the side of the cars, by the machines, and we have so arranged the blocking that when the cars turn over the bearing will be so distributed that it will be taken care of on the stronger portions of the construction of the car, and in this way we will prevent damage to the car. Since that time we have

been getting along very nicely. We have not had our cars damaged to as great an extent as previously.

It is not only the dumping machine which is worrying us now, but the fellow who comes along after the car is loaded with ore, and puts an excess load on them, and then comes along with a traveling crane, with a clamshell bucket on it, and takes out a portion of the excess load, and also carries out the cross bracing; and because of this, new Rule 15 is going to make a little trouble for us as it will allow our cars to spread, and that is one of the new developments we must look into.

Mr. Kearney: May I ask Mr. Tatum how they would distribute the loads on the sides of the car that he referred to?

Mr. Tatum: Blocking sometimes was placed so that it would bear on an area of the sheet that had no support on the inside of the car, and that would result in crushing the car on the inside. By placing the blocking so that it would be back of the supports on the inside of the car we prevented this, but it was not only the crushing in of the side of the car that gave us trouble; we also damaged the safety appliances. The blocking was not deep enough, did not have the necessary clearances for the grabirons, etc.

Mr. Kearney: You mean by reason of not having a suitable or sufficient bearing, the cross braces will fail?

Mr. Tatum: Yes.

Mr. LaRue: I would like to ask in connection with the use of the unloading machines at lake ports: Do they use these machines in the case of all classes of coal cars, and similar cars, with inside and outside stakes, and cars having from two ft. sides to four ft. sides, promiscuous cars, foreign cars, wooden cars, etc.?

Mr. Kearney: I should think if we could answer that question in the affirmative, the work of our committee would be complete. We tried to include in our report a consideration of all the cars now being operated with these machines.

Mr. Tatum: Possibly I misunderstood Mr. Kearney's question. It has been suggested by some of the members sitting near me that I did misunderstand it. If so, I want to correct it. I understood that Mr. Kearney wanted to know what effect there was from the loss of the bracing, which resulted in spreading the car, brought about by the unloading machine—

Mr. Kearney: You said the absence of the bearing.

Mr. Tatum: That is correct—I said the absence of the bearing allowed the sides of the car to spread.

Mr. Downing: In regard to the plate recommended by the committee to prevent wear. We found that the horizontal blocking as well as the vertical blocking on the machines is badly worn, and there would not be an even bearing along on the angle of the stakes. The recommendation of this plate is simply to prevent wearing of the blocking.

The report of the committee was accepted and the committee was given more time in which to carry on its work.

H. L. Trimyear (S. A. L.): I would like to make a recommendation that the committee on prices for labor and material be continued for another year, as I think that the revisions made are very large, and a great many questions are going to arise, covering these prices, that will be referred to the arbitration committee, and I think the committee will be able to help the arbitration committee to solve these problems, and I also think that there are some more new prices that should be considered, and one of which would be the welding of tank cars which we are all coming into the use of now, and which we have no prices to cover.

The President: If there are no objections on the part of the association, the suggestion made by Mr. Trimyear will be referred to the executive committee.

#### OVERHEAD INSPECTION OF BOX CARS.

The committee on rules for loading materials, to whom was assigned the formulation of rules for overhead inspection of box cars for loading, makes a report in the way of explanation, that it does not feel it has had sufficient time to cover the field as carefully as the subject would seem to warrant, hence the report is offered as one of progress. Still the problem is not a new one; on the contrary, every road in the country is striving to control as best they can, and the fruits to be secured by concerted action on the part of all roads are unquestionably conceded.

From 1900 to 1910, the payments by the railways for freight loss and damage per annum has increased in the United States from \$7,055,622 to \$21,756,671. These figures do not include the enormous clerical expense involved in the investigation and handling of claims. Furthermore, it is estimated that the unreckoned inconvenience and loss of time, by the public, incident to these failures of transportation, represents another loss about as great.

The extent of this apparent loss has become a matter of so much concern to the management that the American Railway Association has taken official cognizance thereof, through its committee on relations between railroads, and a special committee, composed of three representatives from the three General Managers' Associations, has been created, and is known as the committee on marking, packing and handling of freight.

This special committee has gathered a great deal of valuable data, and its statistics relating to losses growing out of or incident to, the condition of car equipment seemed to be of so much interest, that Mr. Hale, chairman both of the special committee and the committee on relations between railroads, raised the question with the Master Car Builders' Association, suggesting a joint meeting between their executive committee and the sub-committee on marking, packing and handling of freight, which was held in New York in December, 1911.

Inquiries had been sent out by the committee on relations to some of the larger systems asking for amount of claims paid on account of defective equipment covering the month of November, 1911, resulting in the following:

Total mileage of roads reporting.....	82,360
Gross earnings .....	\$111,004,783.00
Claims paid:	
Account of leaky cars .....	22,228.10
Defective cars leaking contents .....	19,919.89
Projecting nails, etc. ....	529.08
Dirty cars .....	1,625.61
Other causes .....	1,341.37
Total claims paid as above .....	59,650.15

While the roads reporting showed an aggregate mileage of 82,360, with gross earnings amounting to \$111,004,783, and a total amount in claims of \$59,650.15, it is possible that some of the claim figures are incomplete; still the details are of interest and should be accepted as showing in the aggregate the extent of such losses. Going a step beyond this the committee has equated the figures, calculating what the loss might be per year for all roads which totaled, as will be seen, \$139,194.01. The details are as follows:

Gross earnings for the year .....	\$259,061,997.00
Damage claims per year from—	
Leaky cars .....	51,919.37
Projecting nails, etc. ....	46,351.61
Dirty cars .....	3,793.04
Other causes .....	3,062.27
Unclassified .....	32,710.59
Total .....	139,194.01

While the losses directly assignable to defective car bodies are not the largest feature of the total loss, it is probably true that such items as inefficient car doors (facilitating robbery or pilfering), etc., represent another considerable source of loss indirectly chargeable to the cars, which do not appear in the figures.

It seems to the committee that without directly undertaking an answer to that question, there are two distinct avenues through which an improvement can be directly approached, namely:

First—Concentrate the responsibility for losses due to defective car bodies in such a manner as to provide an automatic incentive for the use of better cars.

Second—Establish standard requirements for the inspection of car bodies.

The General Managers' Association of the Southeast has been giving a great deal of attention to the general question of freight loss and damage, and the feature of defective car bodies has been under consideration. On April 9, 1908, they called a general meeting of officers of several departments of lines in their territory to which representatives of roads in other sections were also invited, and their minutes show the following:

*Defective Cars.*—A committee on loss and damage make a report as follows: "It is unfortunately true that the scarcity of equipment has almost compelled the use of cars which were defective in roofs, doors or end windows, but which were kept in service as long as the running gear was entirely safe. We would suggest a closer inspection of the bodies of cars, especially box cars, before loading, projecting nails removed, and if roofs and sides are defective, that they be placarded, 'Not to be loaded with freight that could be damaged by rain,' and be loaded towards home with nondestructive freight, in order that owners make thorough repairs necessary before cars are again permitted to go in service."

This recommendation was unanimously approved and endorsed. The present car doors and car-door fastenings were also condemned, and it was the sense of the meetings that it was very important that a more satisfactory door and secure fastenings for car doors be devised.

The result of their inquiries was, they reached the conclusion that the rules of the Freight Claim Association so operated



as to split up the loss in each case between all the lines participating in the haul, so that the gravity of the deficiency was not brought home to the original loading road. It appears in claims of this character the loading line can throw the loss on the route as a whole, by showing that there had been the "usual and customary" inspection at point or origin. This is so vague as to really mean little or nothing, according to the laxness of the custom of inspection of car bodies at loading point.

Therefore, on December 10, 1908, a resolution was adopted by the General Managers' Association of the Southeast, as follows:

"That the entire responsibility for all loss and damage arising from defective car roofs and bodies be centered upon the line loading the car, and that it shall be the duty of said loading line, in order to relieve itself to produce clear and specific proof—not 'usual and customary inspection,' that the defects did not exist at the time the freight was placed in the car.

"And the Chairman is hereby instructed to transmit this resolution to the Freight Claim Association, with request that it be acted upon, and a suitable rule be framed for adoption at their next meeting."

We understand the Freight Claim Association has failed to act on this, even as yet, but at a joint convention of Freight Claim Agents representing three Atlantic seaboard organizations, i. e., the New York Claim Conference, the Southeastern Claim Conference, and the Virginia Claim Conference, to which this committee was invited, this matter came up, and after full discussion, a resolution was unanimously adopted, as follows:

"That it is the sense of these Conferences that, in order to provide an incentive for the more thorough inspection of car bodies, the Rules of the Freight Claim Association should be so amended as to place the burden of responsibility more positively upon the loading line, to show evidence of proper inspection before loading."

**End Window.**—The Southeastern Claim Conference reported to the General Managers' Association of the Southeast on September 9, 1910, and a recommendation was adopted as follows: "As the end windows afford an easy means of access for thieves, admit rain, cinder and dirt, with consequent damage to certain commodities and to a considerable extent destroys the effectiveness of seal records, it is recommended that the practice of equipping straight box cars with end windows be discontinued, except where the traffic demands otherwise."

**Protruding Nails and Bolts.**—The Committee on Maintenance and Mechanical Matters of the General Managers' Association of the Southeast made a special examination at Atlanta and Chattanooga as to the number of protruding nails, in cars, with the following result:

	Cars Examined.	Nails Projecting.	Bolts Projecting.	Nails Bent Down.
Atlanta .....	425	15,362	867	11,929
Chattanooga .....	305	13,243	286	6,312
Total .....	730	28,605	1,153	16,241
Average .....	...	40	1 4/7	25

Of the 13,243 projecting nails found in cars at Chattanooga, 3,518 were found above belt rail and 9,725 below the belt rail. Something like 20 cars were inspected at Chattanooga in one day and it was found that not over five, possibly ten per cent. of the protruding nails had worked out of the cars, the vast majority of them having been used in order to hold lading. In the four corner posts of one car were found 102, 100, 94, and 67 bent down nails, respectively. As a result of the several conferences in the Southeast, most of the lines issued circulars.

**Leaky Roofs.**—In a report on defective car bodies presented at the October meeting of the General Managers' Association of the Southeast, the statement was made that a great deal of trouble was being experienced on account of leaky roofs, causing damage to merchandise, sugar, flour, cement and other freight subject to damage by water, and an earnest request was made that the railways institute an active campaign to improve condition of roofs, sides and doors of their box-car equipment. In this connection the following record was presented by the St. L. & S. F. purporting to be the result of an investigation showing the condition of car equipment found at their Springfield station platform on a certain day:

Forty-five box cars out of 52 were leaking; 38 cars leaking through the roof and 7 through sides only; a total of 152 roofs leaking with an average of four leaks to each car.

In another report made to the General Managers' Association of the Southeast, January 25, the following data were submitted showing the result of replies received, giving percentage of defective equipment found at certain stations:

It was further reported that for 10 days beginning October 1, the empty box cars passing through a certain division terminal were examined for defective bodies. The result for 702 cars examined is shown at the top of the next column.

Road.	Station.	No. Cars Examined.	No. Cars Leaking.
Atlanta & West Point R. R.	Montgomery, Ala. ....	60	51
Atlanta Joint Terminals	Atlanta, Ga. ....	531	33
Atlantic Coast Line	Wilmington, N. C. ....	43	21
Carolina & Northwestern	Hickory, N. C. ....	66	52
Carolina, Clinch & Ohio	Johnson City, Tenn. ....	20	19
Central Georgia Ry.	Macon, Ga. ....	58	29
Georgia R. R.	.....	102	64
Gulf & Ship Island R. R.	.....	89	9
Louisville & Nashville	Birmingham, Ala. ....	1,801	106
New Orleans & N.-Eastern	Meridian, Miss. ....	1,195	224
New Orleans & N.-Eastern	New Orleans ....	52	45
St. Louis & San Francisco	Springfield, Mo. ....	13	4
South Georgia Ry.	Adel, Ga. ....	8	5
South Georgia Ry.	Quitman, Ga. ....	.....	.....
Tennessee Central Ry.	.....	.....	.....
Total .....	.....	4,038	662

Four hundred and sixty-seven or 66 per cent., were found defective (of these 106, or 15 per cent., had leaky roof).

Two hundred and thirty-five, or 34 per cent. were found O. K.

The 467 cars had from 1 to 33 cracks, or openings, in the sides, ends and doors. At Station "A" 1,195 cars were inspected for loading, and 224, or 18.75 per cent. were found with defective roofs, and at Station "B" 1,801 cars were examined and 106, or 5.86 per cent. were found with defective roofs.

In response to a subsequent circular of inquiry sent out by the General Managers' Association of the Southeast, the following was tabulated:

Road.	No. Cars Examined.	No. Cars with Leaks. In Roof.	Elsewhere.	Total No. Cars Defective Bodies.
C. Ga. ....	136	37	35	72
C. Ga. ....	289	93	136	229
L. & N. ....	208	...	...	48
L. & N. ....	779	...	...	495
L. & N. ....	325	...	...	189
M. & O. ....	70	10	33	43
N. & W. ....	81	32	15	47
N. & S. ....	105	22	38	60
S. A. L. ....	148	...	...	51
T. C. ....	514	120	43	163

While a great many records have been taken in other parts of the country, too voluminous to enumerate, the above will give a very good idea of what is generally found.

**Inspection Card.**—Another committee recommended the use of a card certifying as to the proper condition of car when furnished for any specific load, and suggested that such cards should cover a more thorough inspection as to the suitability of a car for a given commodity. Furthermore along this line of handling the work, attention was invited to the system in vogue on the Frisco, which had been reported as being very successful in materially reducing the number of claims which they felt satisfied would otherwise have been incurred. The card used by this road is one about 8 in. by 6 in. printed in red.

The use of the card by the Frisco carries with it the understanding between the railways and the mills and other shippers that they must not load a car with flour or mill products until one of the cards is attached to the car, and when car is loaded the card must be removed from the car and turned into the Agent to be attached to the duplicate bill of lading, and the Agents are instructed not to sign bill of lading for flour or mill products until such card is signed by the Inspector or the Agents's representative, if there is no car inspector at the point of loading. This card is then filed in the station record with the duplicate bill of lading, and in event of a damage

Application for car to load \_\_\_\_\_  
(Article.)  
Applicant \_\_\_\_\_  
Request Received, Date \_\_\_\_\_ Hour \_\_\_\_\_  
Car placed \_\_\_\_\_ Date \_\_\_\_\_ Hour \_\_\_\_\_  
I hereby certify that car Initial \_\_\_\_\_ No. \_\_\_\_\_  
was placed on date and at hour stated, and was in suitable  
condition for loading above mentioned article.  
Date \_\_\_\_\_  
(Sig. person exm. car.)

Fig. 1—Inspection Card Proposed by the General Managers' Association.

claim being presented, the loading station is asked to produce a copy of the flour inspection card. As pertinent to this, in the year 1911 the Frisco system reports having paid \$43,150 for claims directly traceable to defective equipment, which amount was 8½ per cent. of the total loss and damage to freight handled.

The same General Managers' Association suggests the general adoption of a card, somewhat revised, showing that the car has been examined as to its condition before loading, as per Fig. 1.

This form was sent out to the members of the Southeast for criticism, but it has not yet been reported upon.

The Chicago, Milwaukee & St. Paul reported that they have found it profitable to adopt an inspection card certifying to the condition of the car before loading flour, on account of the number of cars that have apparently been loaded at stations before they were put in proper condition for such shipments.

The St. Paul further informs us that they were somewhat surprised at the number of cars reported in unsuitable condition for the loading of such commodities, thinking that their own cars in this traffic were in very fair state of preservation, as many of them were taken directly from the repair tracks for loading; therefore, in order to know how foreign cars were running in this respect a close inspection was instituted which showed that out of 100 cars, 65 were unfit for this class of traffic.

The Chicago, Great Western reports that at Minneapolis, where they handled heavy flour and grain shipments, they have introduced with very good results, a special overhead, as well as interior, inspection of box cars to insure their being in good condition and clean, thus making them suitable for such shipments. Where the floors are somewhat foul and the car otherwise in good condition, the floors are painted over with a quick-drying paint to prevent damage to lading. In the selection of cars for this service extraordinary inspection is made of the superstructure, floor, sides, roof, etc., after which a card is made out by the party making such inspection which is signed by him and turned in as a record of the car being suitable before loading.

**Grain Leakage.**—In a report on freight loss and damage to the General Managers' Association of the Southeast, March 10, 1910, Mr. Levy explained the method they follow for preventing the leakage of grain, and as it is so much to the point we quote it herewith:

"Through our traffic department, I received a letter from Mr. Christensen, the freight claim agent of the Texas Lines of the M. K. & T., which gave some interesting figures on grain claims. It stated that the Galveston Wharf Company, at Galveston, a port that exports considerable grain, made a test inspection of 7,429 cars of grain unloaded at their elevator, and found that 4,859, or 67 per cent. were leaking grain, and accepting these figures as being correct it is startling information. Of the 4,859 cars found leaking, 2,381, or 40 per cent. were grain-door leaks; 2,478, or 51 per cent. were due to other defects. In thinking these figures over, we felt that if we could devise some method for doing away with the leaking at the grain doors, we could then by one operation, reduce by one-half the number of claims for loss of grain in transit. We made some investigation, and found that while our grain doors cost us in the neighborhood of \$1.50 to \$2 per car, they do not give us the protection against loss of grain for several reasons: The nails are not always removed from the door post, preventing the grain door from fitting tightly against door post, permitting leakage of small grain between door posts and grain doors. Furthermore the grain doors, which are made in 20-inch sections, 7 feet long, are of unequal strength. The tendency of the weight is to go downward, and to press out at the weakest point, which is the grain door. Sometimes you will find a car where one of the 20-inch sections is bowed out, allowing grain to run through the opening, and when the car is unloaded, the board goes back to its original position, and you have a perfect car, still you are short a number of bushels of grain.

"We made some experiments, and they are satisfactory and we are carrying them further. We purchased eight-ounce burlap in bales of 2,000 yards, which cost us about a fraction over 4 cents a yard. It requires in the neighborhood of fifteen yards to fix up a car in the manner that I will describe, or 60 cents per car. If we had a claim on a car of grain, it would cost us more than 60 cents to investigate it, even though we could escape payment. This burlap is 40 inches wide and we cut it in strips of 8 feet, and after we place the grain doors in the car, we line the grain door on the inside, one section of the burlap extending about 10 or 12 inches to the center of the car floor, the top section lapping over the top of the grain door and over the first section of burlap 18 or 24 inches, so that when the grain bulges, the cloth will draw up, but it will not tear.

"Then the burlap is held in place by small wooden strips,

made out of scrap lumber, which are nailed to the car at the angle of the end of the grain doors and the side of the car, making a tight joint between grain door and side of car, and absolutely preventing loss at grain door. In addition to lining the grain doors with burlap, we put a strip of burlap about 3 ft. long over the draft and king bolts, placing a tack in each corner. We require our car inspector to grain door and burlap cars for grain loading, and to show on his grain inspection card, Form 405, that it was grain-doored and burlapped by him. If loaded at a point where there is no car inspectors, we furnish the material to the elevator men and they apply it. When loaded to a point on this line, we instruct agents at destination to return burlap to point of loading. At some elevators they tear out the bottom section of the door, and in so doing mutilate one section of the burlap. We write the agents at destinations of the grain loaded in burlapped cars and ask if there is any leakage, and opinion of consignee of using burlap, and they all report no leakage at grain door, draft or king bolts.

"We feel that 60 cents a car expense is cheap insurance, and we are going to continue that use of the burlap and at the expiration of six months we will be prepared to issue some statistics on both the flour method and the grain method, but we will not get the maximum results unless we can induce other roads to join in something of the same kind."

The committee has in mind the apparent wisdom of going somewhat cautiously and shows here appended in detail its idea as to how it thinks the division might be made; at the same time it does not believe it would be well to attempt for the present to go beyond defining the inspection for the commodities readily damaged by moisture, and for the reason that the rough shipments offered and other shipments carried in box cars might take care of themselves a while longer.

It is also certain that the most earnest and sincere cooperation on the part of all railways is absolutely necessary, otherwise little can be gained though much money might be expended.

In the Twenty-fifth Annual Report of the Interstate Commerce Commission, issued December 20, 1911, it is reported under the heading of Shippers Claims, that—

"From their annual reports to the Commission for the fiscal year ending June 30, 1910, it appears that the interstate steam railway lines during that year paid out the sum of \$21,941,232 in settlement of claims presented by shippers for the loss of or damage to their freight in transit. For the fiscal year 1909 the amount paid out on this account was \$24,916,830 and for the year 1908 such claims aggregated \$27,554,526. The payment for the last mentioned year amounted approximately to 1.6 per cent. of the total freight revenue of the rail lines so reporting to the Commission. For the year 1909 the amount aggregated approximately 1.5 per cent. and for the year 1910, 1.1 per cent. of their total freight revenue. Although it is apparently diminishing in amount, the charge thus made annually against the operating expenses of the rail lines is still substantial enough to be a heavy tax on the transportation of the country.

The method and definitions of inspection the committee is suggesting are as follows:

#### INSPECTION OF BOX-CAR EQUIPMENT FOR CERTAIN SHIPMENTS NOT OTHERWISE COVERED BY RULES FOR THE TRANSPORTATION OF EXPLOSIVES.

##### *Classification of Equipment for the Following Classes of Freight.*

**Classification (A)**—FREIGHT READILY DAMAGED BY MOISTURE, such as lime, cement, plaster, flour, sugar, boxed, sack and crated packages of seeds, coffee and merchandise, grain, hay, dry goods and notions, high grades of finished lumber, leaf tobacco, furniture and household goods, and certain grades of tin and galvanized iron.

**Classification (B)**—FREIGHT NOT READILY DAMAGED BY MOISTURE, such as raw wool, baled cotton, crated china, agricultural implements, barreled liquids, hides, shoos (knocked down boxes), wagons, carriages, tools, stoves and stove castings, certain grades of lumber, etc.

**Classification (C)**—ROUGH FREIGHT, such as coal, coke, brick, pig iron, slate, tiling, earthenware, pipe, ties, barrel staves and other rough lumber.

##### *Method of Inspection Before Loading.*

(a) Inspection to be made at point of loading whenever practicable, or,

(b) At point of distribution from which car is forwarded to loading station and again by agent.

(c) Cars received and unloaded at stations where no inspectors are located should be inspected by the agent.

Aside from the Master Car Builders' inspection of car, including roof, running boards, air brakes, safety appliances and running gear, as well as the external inspection of sides, ends, doors, ventilators and windows, an internal inspection



must be made of the roof and siding, with doors, ventilators and windows in closed position:

1. Search for light indicating openings and cracks which might produce leaks.
2. For loose, damaged and broken boards, loose knots, knot holes, bad joints, etc.
3. For all nails and bolts extending above surface of floor and lining and nails protruding through roofing.
4. Search for water stains indicating cracks and air spaces.
5. Search for cracks sufficient to admit storm water beating through opening, also for openings and bad joints around windows and doors.
6. Examine for metal sheets out of position along edge of subcarlins or down from edge of ridge pole.
7. Search for small holes in metal roofs due to rust or small openings in roof from other causes.
8. Doors must operate and close properly.

The floors should be clean, dry and free from defects sufficient to admit moisture, and any fouling by previous shipments, such as fertilizer, oils, and other freight which would damage more perishable commodities. If the center pin is uncovered it might be necessary to cover it with a piece of board, depending entirely upon the character of freight to be loaded.

Inspect closely for defect in framing which might, by reason of their weakness allow the sheathing being readily broken or damaged.

#### INSTRUCTIONS.

After car is thoroughly inspected and known to be in good condition and suitable for the transportation of commodities in Classification (A), the Inspector or Agent, as provided for, making such inspection or able to certify to the condition of the car must make out the prescribed certificate of inspection card, marking the same O.K. for (A) classification, as per sample card, shown in Fig. 2.

<b>A    B    &amp;    C    Ry.</b>  <b>THIS CAR</b> No. _____ Initial _____ <b>O. K.</b> <b>FOR</b> <b>SHIPMENT OF COMMODITIES</b> Under _____ Classification. Inspected by _____ Date _____ 191_____ Station _____
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Fig. 2—Inspection Card for Box Cars.

The certificate of inspection card must be delivered to the Agent before Bill of Lading is issued, and card must be attached to the Agent's office copy of bill of lading or shipping ticket, for future reference in case of question arising as to the condition of car before loading.

The report is signed by:—A. KEARNEY, (N. & W.), chairman; R. E. SMITH, (A. C. L.); L. H. TURNER, (P. & L. E.); W. F. KIESEL, JR., (Penna.), and C. H. OSBORNE, (C. & N. W.).

#### DISCUSSION.

Mr. Kearney: This is a report of progress. The subject comes to us quite late and the committee did not feel they had been able to cover it sufficiently. We believe if it is so desired to continue the committee and continue this work, we ought to change the personnel of the committee and get into the committee some of the members of the Western lines handling this particular freight that they protect by these cars, and in that way we might be able to get a settlement on a definite form of card, provided it is desired to use a card for material readily damaged by moisture.

The President: This is a matter which deserves a great deal of discussion. I believe we have all had trouble with leaky roofs, and loss and damage due to defective cars, and I would like to hear further discussion on the subject.

F. F. Gaines (C. of Ga.): This is certainly a very valuable and important paper, and I believe if any members of this association will pick out a day when we have a good hard, drifting rain, and go to some good central points of line where we have cars, they will see the results. Now, the majority of the defects that cause these troubles are so small that the average car inspector, in ordinary car inspecting, is

not going to find them; and that brings up the point I wish to call your attention to. Who is going to be the proper party to make an inspection of this sort, as to the interior car and its safety and proper condition for labeling? I think it is not one we should not load on our present car inspectors. They have all got their duties, and it is quite impossible for them to make a thorough interior inspection. It seems to me and it would be my suggestion that it would be necessary and desirable for a conference with the American Railway Association along these lines with the idea of relieving the car inspectors from this inspection.

Mr. Brazier: This is a report which comes before our association that hits us more than any other. I wish every member could have been in the arbitration meeting yesterday and heard the joint inspectors of these companies tell us the amount of money it costs to keep up the ordinary repairs under the M. C. B. rules. This grumbling away about repairing cars is a myth, and the sooner we get down to the spending of money on repairs and keep equipment up, the better for us. What I want to impress upon you is: there are many claims to-day paid that should not be paid out of repairs, many more than should be, and many more than are apparent. The condition of equipment to-day in this rush of transportation system is wrong. Our traffic department wants to get business; it is our bread and butter; but at the same time they do not give us time enough to properly inspect the old cars or properly to repair them. And what is the result? On our system in the month of March we had 41 wrecks caused by broken trucks. Why? Some little nut or thing missing. I am just old fashioned enough to believe we will have to come to some rigid way of inspecting; that is, not to allow a nut to pass unless it has something reliable to hold it in place. We have got to do that to protect ourselves. The inspecting is in charge of departments which are held responsible, and at the same time the traffic department is out after business. They want to make fine runs and they are running freight trains to-day like passenger trains; as a result there are too many accidents which are caused by loose inspection. The sooner our management finds out that we must spend more money to keep up equipment, the better it will be for all of us.

I want to offer a resolution that has been handed to me, which hits the nail on the head, and which reads as follows:

"Whereas, for the safe and expeditious movement of traffic, the freight car equipment of this country should be maintained in the highest state of efficiency;

"Resolved, that the Master Car Builders' Association urge upon the American Railway Association, also on the several general managers associations, the necessity for the authorization on the part of the executive officers of the railways, of sufficient expenditures for the maintenance of freight cars as will attain and maintain this efficiency; and be it further,

"Resolved, that for the purpose of immediate procedure, it is recommended that the members of the Master Car Builders' Association as individuals shall urge upon their several corporations, that, in the case of home equipment when placed empty upon shop tracks or repair branches, it shall be placed in condition for M. C. B. interchange; and in the case of foreign cars, authority shall be granted by the owning road to follow a similar plan, or the car returned to the owner immediately for the accomplishment of this purpose."

I believe if our managing officers could realize what this means we would have what we call on our road—running repair men. We require all cars to be put into condition and inspected under the M. C. B. rules; we try to do that; but we repaired a million and a half of cars last year, and yet to-day we are with more than 4 or 5 per cent. of our cars in bad order; and I think that is the way you will find they are running throughout the country, and we cannot keep up with repairs.

It is a disgrace to us car builders to go to the ordinary railway yard and see the condition of doors and doorsteps. I think the manner in which an ordinary wooden doorstep is applied to-day, is a disgrace; as soon as the air-brake is applied, it splits and the door opens. And then the condition of the roofs; they are in terrible condition; and we cannot do anything by talk alone; we must do it by money and work, and I would therefore offer this as a resolution to be adopted.

M. K. Barnum (I. C.): I would like to second Mr. Brazier's resolution. I believe the figures of most railways show that freight cars go onto the repair tracks on about an average of ten times per year, and many are turned out without doing all the work required to put them in first class condition. If all the work that should be done on cars that come to the repair tracks was done, it would be more economical than the present practice, but at first it would require an increased force and a larger expenditure. I know of one road that handles a great deal of flour and cement, and the superintendent of transportation told me that in order to get 25 cars to safely load with

flour and cement, he had to set in from 100 to 125 cars. That is sufficient to show, I maintain, why our cars, particularly box cars, should be kept in the best state of repair; and I don't think we should be afraid to tell our managers that we need more money for this purpose.

Mr. Tatum: Inspection will not repair the car; it will fix it as a candidate for the repair shop. If the inspector, after shopping the car, fails to get it to the repair shop, the value of his inspection is worth nothing to the railway. The repair shop foreman must have sufficient facilities and labor to repair the car. To arrange cars and inspection for cars of various classes of trade, I do not think is a practical arrangement. It may be wise to have your equipment arranged for two classes of freight, especially your box car equipment. You may have a certain portion of it set aside for rough freight, the balance should be arranged to prevent any loss of freight that the transportation department sees fit to load into it. If you fit your cars for the best loading, and your superintendent loads rough freight into it, what is the result? It only makes one trip before it is not fit for the loading it is required for. If you fit your cars up for flour, for cement and for other commodities, and your superintendent loads it with coal, with coke, mine crops and such material as that; is it likely to be fit, after unloading, for the loading it was intended for? It is not. It has to go to the repair shop again. Go through your yards and you will find the ends of the cars broken out; you will find the doors in bad condition. Why? Because it has not had proper attention; it has not been placed on the shop track when it first needed repair. Instead of that, it was allowed to run until it cost 3 or 4 times to repair, than it would if it had been repaired when the defect was light.

We should have our cars equipped with substantial roofs, tight roofs, and substantial ends, that will stand the average service of to-day. They should all be kept in their proper service. But it is a question whether that can be brought about. If it is done, I believe we can keep our equipment in better condition of service than heretofore. It narrows right down to the rule before the association, that we must let our management know the condition of equipment, that we must have facilities to repair, and we must have time to make the repair. I would suggest that this association support the paper that has been submitted.

Mr. Downing: I wanted to talk along the same lines that Mr. Tatum talked; and I think it would be a good idea to let the mechanical department know what percentage of box cars should be maintained for certain freights. I do not think it is along the line of safety to pick out certain cars for a certain commodity. As Mr. Tatum said, we have cars outlined in this paper, and if we do not maintain our cars at 100 per cent. we are just as liable to find 500 all in a bunch, not fit, and another 500 in some lumber district. In regard to inspection as outlined by Mr. Gaines, the inspector will have to do it; the cars will have to be inspected on arrival at the terminals. If you don't do that they will be switched into the transportation yards at different points. It is up to the inspector to look after that. A man who does not understand construction will only look at the roofs and floors. A good many cars have roofs and floors all right, but they have weak parts somewhere else, and they are not safe to load grain on. Instead of talking about spending a lot of money to equip cars to make them fit for grain, let us spend the money for new cars.

C. E. Swanson (A. T. & S. F.): I want very forcibly to bring out the question of the insecure fastenings of the side door. Mr. Brazier touched on the subject, and it is a very important one to-day. We have cars in good order with good door fastenings that can be entered and pilfered, and the fastening placed back without the seal being disturbed, and further, nobody could tell that it had been pilfered. On our line last month, we had 462 losses on sealed shipments. My attention was especially called to this by a special officer who asked me to go through our shop with him. We went to the shop and sealed for inspection fourteen cars from different roads, and that man entered everyone of those cars without breaking the seal. He did it very quickly, and placed it back so no one could tell that he had been in. These cars were equipped with the old staple with one bolt, and I find a great many of the roads are still maintaining that old iron staple with one bolt. With a bar of iron about 16 in. long, you could easily break that hasp and enter the car. Another thing, the back corners of our doors, not being protected by iron, are soon chewed up so that they can be pressed outward enough for one to enter the car without breaking the seal.

Regarding leaky cars, our management two years ago started a loss and damage committee, which meets twice a year to talk over and apply remedies to prevent the robbing of our treasury unnecessarily, and I believe that the agitation that has been started and the questions that are being discussed in

all the organizations will have a beneficial effect. The Secret Service convention meets in Buffalo and this subject of side doors is going to be discussed there. The mechanical department get the blame. The Claim Association is going to take the matter up also, and we will get the blame because the roads will not repair our cars.

Mr. Hennessey: I will move as an amendment that the resolution of the Master Car Builders' Association be referred to the executive committee of this association, and that they in turn refer this discussion, or such part of it as they see fit, to the American Railway Association.

E. T. Millar (B. & M.): I want to confirm what Mr. Brazier has said as to the expense of repairs as compared with the cost of damage, and also what Mr. Swanson has said regarding the entering the cars without breaking the seal. A number of employes on the road I am employed by experimented on this subject. One set of men fastened a door as it should be and another set of men entered the car and put it back in its original condition. In the majority of cases there is no trouble at all to enter the car without anybody knowing, and the car goes through with an unbroken seal. I believe every person connected with this association should do everything he can to get a stronger and more suitable device for their cars. Those things can't be obtained for nothing. We have to pay money for them, and those of us who are lower down will have to talk loud and long to our superiors to get the money for them.

Mr. Kearney: I think we are responsible, and very largely responsible, for our equipment. I am sure I would regret very much to usher our general manager down the line, because I could not defend the condition of the cars; I could not blame him for it and I could not blame them for it; that is, for not giving us the amount of money to spend on equipment, because they would come right back at us and tell us we had recommended a standard as satisfactory to us which was not satisfactory. As a gentleman said a moment ago, we would be blamed for it, and I think it belongs to us; if we do not put the right kind of hasp on, we can't blame the general manager for that. I would not think of telling the management that they did not give us the right kind of hasp. They would tell us we did not know what a hasp was for; but they would also tell us they wanted a car in good condition, and they would accept the car just as soon as we had decided it was satisfactory for service. I think if we would raise our standard for the condition of cars and fix them as we think they should be fixed, and in accordance with our ideas as we have expressed them here, they will very soon back us up. The trouble is, and isn't it a fact, that we pass the cars through the shop to work.

F. H. Stark (Pitts. Coal Co.): I believe the matter should be brought to the attention of the general managers regarding the manner of handling equipment and the large loss sustained through the rough handling of cars, which cannot be measured. Another feature is that we cannot better the condition by making a new resolution and then going home and be governed by the wishes of the individual railways. It would not be practicable to tighten up on the inspection, as a force measure; for the shipping interests of this country would not stand for the return of the old protective system. Consequently, we must adhere to the present system of expediting freight. As to how to force railways to maintain their cars to a better standard, is a question, but it cannot be done by tightening up on inspection. Some 10 years ago I suggested that if the mechanical department did not take the initiative, the transportation authorities would assume control of the interchange of cars, and they are gradually making inroads on our jurisdiction. I suggested at that time that a commission be inaugurated to represent all of the railways in this country, and that inspectors be employed to travel the country over—much as the Interstate Commerce Commission inspectors do. This will enable all roads to delegate to the company having foreign cars in its possession the right to make all the repairs necessary, instead of making partial repairs as is the practice, so long as they maintain the car to standard. If, through these inspectors the owner will be assured that they will be made proper, and that the charges will be made accordingly for the repairs, no one will object to repairs being made at any time and place.

I believe it is coming. The American Railways Association has already taken steps to appoint a commission to look after the proper handling of cars, and the question of interchange and maintenance is equally important. Such a commission could assist in bringing about uniform inspection, proper repairs and billing therefor; also prevent the use of materials not in accord with standard specifications.

E. Chamberlain (N. Y. C.): Mr. Downing, an official of the Lake Shore Road, stands up here and says we cannot maintain an equipment of 100 per cent. efficiency, that is very true; but by the able assistance of the American Railway Association



you can take some steps in that direction. If, upon your repair branches and tracks, when the cars come there, they are put in a perfect condition for M. C. B. interchange, you have accomplished a great part of the proposition. It would be, of course, very desirable to have all the equipment at 20 per cent. of efficiency, but cars would drift away from your inspection points and be apt to be loaded with something you did not want.

Mr. Brazier: My resolution is offered in the best of spirit, and we want to put this thing up to our managers, that we may be authorized to take it up. As to my good friend Mr. Stark, I cannot agree with him. I would like to ask him how it affects the traffic department. We had, week before last, a foreign car break down—one truck—and we had 41 cars delayed by reason of that one break. I can't say that is poor inspection; but you are going to have expense whatever you do. Equipment is going to be the same. Mr. Downing strikes it right; we should wipe out these old cars and get new cars. Mr. Tatum has the right idea. I don't know that it will do us any good to discuss it any more. You all know I am telling the truth, and we should have greater efficiency and more money. Let this go to the executive committee; they in turn can turn it over to the American Railway Association, and they can tell us what to do.

Mr. Hennessey: They talk about tightening up on inspection and that we keep tightening up on inspection. Now, if we only put our cars in proper condition, we will lessen inspection and will not require tightening up. If a car is in proper condition, we have no inspection to make.

D. R. MacBain (L. S. & M. S.): The air of the convention is rather pessimistic to say the least, concerning the car situation. I will agree with a great deal that has been said, but I think we ought to look back a little way and try to see the cost of the low efficiency in the freight car equipment. I think everybody in the room will remember the spirit we had during 1905, 1906 and 1907 when everybody had more business than he could do with the equipment end, and at that time it was an universal thing for everybody throughout the country to do what he could to get his equipment moved. That lasted until 1907, when the panic came, and from that time on we have been in bad condition, from slighting repairs. The trouble was we were forced to keep the car moving just as long as it was safe to run and we went back on the maintenance, and we have not taken hold of that end since as it ought to be taken hold of in order to get back to where we ought to be. I don't think the situation is so disastrously bad as has been stated. As one gentleman said this morning, the greatest difficulty is in the roof and the door. A walk through the big yards will convince anyone that the roof and the door have been neglected. Even the poorest arrangement on the door would do well if it had been maintained; but it had been neglected. Now getting back to the soundest way of treating repairs, the proper thing is to repair the car, not make it fit to run only—as we did at the time we could not do anything else.

Mr. Kearney: That is the thing exactly.

Samuel Lynn (P. & L. E.): Our superintendent of car service called us up and said at a certain point of our line where we had 10 shipments, he had something like 60 cars, and I had the inspectors go over those 60 cars, and we got 4 out of the lot. Now, we are using on our line a system where the inspector passes on the cars that are fit for loading, and the percentage of cars we can use is very small. We find in some cases where we have put cars on, the shipper will turn the cars down because he has a test, and the percentage we pass would probably be cut down 50 per cent. Now, that is in line with what Mr. Stark says.

Mr. Barnum: I want to say if we should only tighten up our inspection there would not be enough serviceable cars left to handle the ordinary business. I presume you have all had the experience, when there was a shortage of cars, of being instructed to have your car inspectors look over the "bad orders" and return to service all that had no penalty defects and were safe to run even though they might have leaky roofs, loose siding and other defects which ought, for their proper maintenance, to be repaired at the time. I have spent a great deal of time in the last 10 or 12 years figuring on who was making their car repairs the cheapest, but have seldom been asked who was keeping their cars in the best condition. The road in the West that is the very lowest in the cost of its car repairs, is also above all others in the way its cars are maintained.

A great deal of the trouble starts with the buying of new cars. The question of side doors has been raised here. We all know the difference between a first class door and one that is not first class is only a matter of a dollar or two a car, but it means \$2,000 for 2,000 cars and so the cheap, flimsy door is generally specified.

The President: Gentlemen, you have heard the motion as amended by Mr. Hennessey. The motion was put and carried.

#### COUPLER AND DRAFT EQUIPMENT.

At the last convention, the committee was instructed to design an M. C. B. coupler and present it to the next convention. The committee was also authorized to take up with the coupler manufacturing companies the subject of redesigning the freight car coupler; to invite representatives of coupler manufacturing companies to join with the committee in designing and adopting one standard freight-car coupler, and to employ, at the expense of the Association, such expert assistance as was found necessary to carry out the work of designing the proposed new coupler, the amount of this expenditure to be subject to the approval of the executive committee. The committee was also instructed to prepare a design regarded as a temporary coupler and submit it to the executive committee.

The committee has made a report on this last item which was adopted by a special letter ballot and is contained in the 1911 Proceedings, pages 513 to 520, inclusive.

#### STANDARD M. C. B. COUPLER.

Each coupler manufacturer has developed, subject to the restrictions of the M. C. B. Association, one or more couplers based upon his own ideas, but employing certain fundamental



R. L. KLEINE,  
Chairman, Committee on Coupler and  
Draft Equipment.

principles, consequently the couplers thus produced vary in design and it is neither practical to develop a composite design from the ideas and principles thus employed nor even to standardize any of the individual parts. As the service conditions increased or the design or strength of the individual type of coupler proved inefficient, the manufacturers developed other couplers in the effort to keep pace with the conditions imposed, which accounts for the number of types of couplers in existence. The increase in the requirements of M. C. B. Specifications from time to time is directly responsible for some of these later types having been developed and the elimination of many others, the direct result being the reduction of the total number of types in service.

The committee in order to acquaint itself with the different service conditions determined upon a thorough investigation of the performances and failures of the existing couplers so as to determine the limitations of the present M. C. B. coupler and establish a basis upon which to design the standard coupler. To facilitate this work a subcommittee was appointed consisting of representatives of the members of the committee with instructions to review the subject carefully by making an investigation of existing couplers visit roads where trouble is experienced with the present M. C. B. design of coupler and submit recommendations for the design of a standard M. C. B. coupler.

#### CONTOUR LINE DISTORTION AND COUPLER FAILURES.

The chairman of this subcommittee was directed to correspond with railways in various sections of the country to ascertain whether or not it is general that serious trouble is being

experienced with coupler contour lines being distorted on certain roads having severe grade and curve conditions, especially where the Mallet locomotive is used, and also to learn what difficulties are being experienced in maintaining the present coupler in repairs.

The replies to this circular brought out that there was no more trouble experienced from coupler failures where Mallet locomotives were used than with the consolidation or other types of locomotives and that the coupler failures enumerated below were common on most of the roads predominating where heavy service obtains.

**Coupler Head.**—Face of coupler cracking and breaking; guard arms spreading and breaking; striking horn crushing in, making lock inoperative; coupler lugs breaking off, starting from the inside; knuckle pin holes in coupler elongating; distorted contour lines, and difficult to couple with slight impact.

**Knuckles.**—Breaking through pivot pin hole; broken tails; breaking through shank of knuckle; worn knuckles at lock-bearing area, and elongation of pivot pin hole.

**Knuckle Pivot Pins.**—Breaking and bending.

**Locks.**—Worn and damaged.

The recommendations contained in the above replies were not very numerous, the most common being as follows: Strengthen the guard arms; increase thickness of front wall; increase size of coupler lugs; strengthen side wall back of lug; side of coupler; increase size of knuckle and make pivot pins as large as possible; modify contour lines to provide for increases suggested in above, and increase lock-bearing area.

The subcommittee investigated coupler conditions during the summer and fall months of 1911, visiting several railways, in addition to the roads which they represented.

During their investigation, the common coupler troubles and recommendations heretofore mentioned were kept in mind and thoroughly looked into. Scrap piles were examined, couplers gaged in service and freight trains ridden in order to measure and observe the true action of couplers in service. Records were taken of the broken couplers, knuckles, etc., and the gage of couplers in service. The committee has this data at its command to be used in the designing and developing of the standard coupler.

The investigation developed that a large percentage of the coupler contour lines being beyond gage was due to couplers of old design not being maintained and some of the later types being very poorly fitted up when new; knuckle breakages resulting from air-brake troubles on long trains; and guard arm and face failures, due to rough handling of cars in classification. Knuckle-tail failures were common, attributed in many cases to faulty design. It was quite evident that new couplers did not receive the close inspection necessary to insure proper fitting of the detail parts.

Aside from the above, numerous failures of coupler bodies and contained parts forcibly impressed the committee that the couplers should be materially strengthened, and with a view of

determining the increased strength required it was considered absolutely essential that the strength of the present coupler should be established.

#### TESTS.

At a meeting of the subcommittee in conjunction with C. D. Young, engineer of tests, Pennsylvania Railroad, a series of static, drop and road service tests was outlined. Heretofore, all coupler and separate knuckle tests have been made by measuring the ultimate distortion after the final blow as prescribed by the M. C. B. specifications, but in the tests now being conducted the distortions are measured after each drop or pull and tabulated by so much plus or minus from the original dimensions, the idea being to establish the point at which permanent set takes place. The location of points, etc., are shown herewith.

During the last several years the process of heat treatment has been given attention with a view toward increasing the tensile strength and elastic limit of cast steel, but couplers have not been experimented with, under this process. Pulling test of the couplers and parts with varying chemistry and treatment are being included in the test program.

The Pennsylvania Railroad has kindly volunteered to conduct all the tests for the committee and they are now under way at Altoona, under the direct supervision of C. D. Young, engineer of tests. These tests, embodying the features mentioned, are being carried out on the following types of 5-in. x 7-in. couplers; Pitt; Janney X; Major; Major Special; Gould Z; Latrobe; Sharon; Krakau; Bazeley; Simplex and Simplex Special. The total number given for test by various roads is 322.

The road tests to be conducted are as follows:

By the Pennsylvania—12 couplers; 2 each of the Pitt, Sharon, Gould Z, Simplex, Major and Latrobe, applied to 100,000-lb. capacity steel hopper cars regularly assigned to the coal trade; 3 Pitt, 3 Sharon, 12 Krakau, 12 Simplex Special and 6 Bazeley couplers applied to steel tenders in freight service. These couplers are to be plate labeled, gaged and trammed before application, and will be followed closely.

By the New York Central & Hudson River—6 Gould Z and 6 Simplex couplers applied to tenders in freight service.

In both cases these tender couplers were furnished by the respective roads.

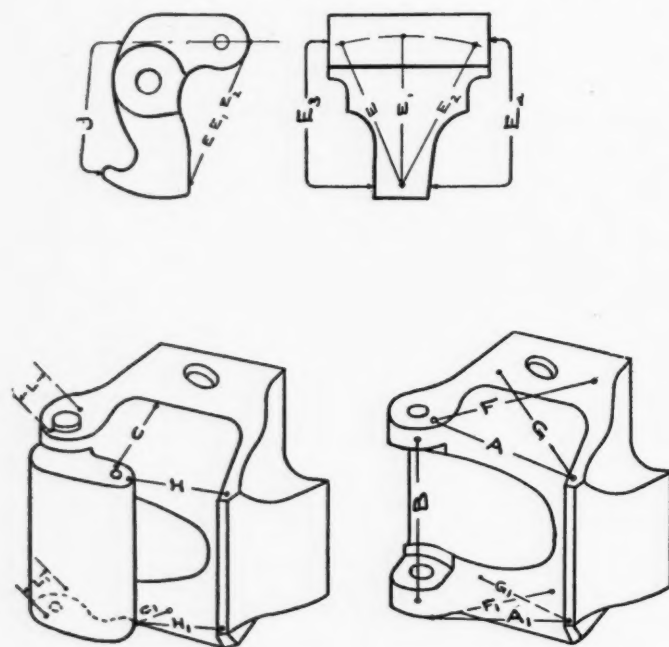
The following coupler manufacturers were represented at a joint meeting held in Altoona on March 4, 1912: American Steel Foundries; Buckeye Steel Castings Company; Gould Coupler Company; National Malleable Castings Company; Monarch Steel Castings Company, and McConway & Torley Company.

The chairman outlined the position of the committee in regard to the probable procedure, substantially as follows:

"The idea is to design the one standard coupler on the best principle or principles known to the art, to be determined from the fundamentals used in the design of present or past couplers and from our knowledge of their behavior in service, eliminating in the new design the failures and proven mistakes in the old. If this can be done without infringing any existing valid patents it would be an ideal solution, in any event it is the purpose to design the best coupler within our power, then submit it to ascertain whether it contains infringements of any existing valid patents. Should it be found that the coupler thus designed infringes any patents, it is the purpose of this committee to recommend to the Master Car Builders' Association that the owners of any patents involved be given due consideration and settle upon a basis mutually agreed upon between the coupler manufacturers and the M. C. B. coupler committee, so that the standard coupler may be manufactured and purchased in the open market. It is understood that with the design of the standard coupler suitable gages covering the detail parts will also be included as well as specifications in accordance with which the new coupler must be purchased."

The subject of patents, should they be involved in the standard coupler, was taken up by the manufacturers, and at the next joint meeting they presented a tentative proposition, the substance of which was as follows: That all the coupler manufacturers are willing and glad to cooperate with the M. C. B. committee in reference to designing and adopting a standard coupler, and, in order that the work of the committee may be entirely unhampered by any patents of the present coupler manufacturers, the manufacturers have been considering what arrangements could be made between them to this end which would afford to any company owning patents, which might be embodied in the coupler selected, proper compensation for the use of these patents as suggested by the committee. The manufacturers had not succeeded in working out the details of such a plan but they believed it could be arranged.

Another joint meeting was held with the coupler manufacturers at Altoona Pa., May 15, 1912, at which propositions were submitted to the committee, which have been referred to the executive committee of the Association.



ABOVE DIMENSIONS WERE TRAMMED ON ALL TEST COUPLERS.

Tramming Points for New Coupler Tests.



The coupler manufacturers named representatives to act with the committee in designing and adopting a standard coupler.

#### M. C. B. STANDARDS.

1. *Location of Lock Lift.*—In answer to recommendations referred to this committee by the committee on standards and recommended practice, the committee would recommend including in the standards the operation of the lock from the bottom in addition to the present top lift, which requires the following changes in the standards:

Page 624, 1911 Proceedings, sixth paragraph, change to read: "That all top-lift couplers must have a  $1\frac{1}{16}$  in. eyelet for locking device located immediately above locking pin hole."

Same change to be made in note on Sheet M. C. B. 23.

Page 628, 1911 Proceedings, first paragraph, change to read: "The lock lift must be in the central longitudinal vertical plane of the coupler located between the vertical plane of the striking horn and contour lines, and must operate either from the top or bottom by an upward movement. The total lift of locking pin shall not be more than 6 in."

2. The attention of the committee has been directed to a discrepancy in a dimension shown on Sheet M. C. B. 23. Since the introduction of the  $9\frac{1}{4}$  in. and  $12\frac{1}{4}$  in. heads the distance from the pulling face of knuckle to the buffer block or end sill as now shown on Sheet M. C. B. 23 is only correct for the original  $8\frac{3}{4}$  in. head. As this dimension varies in accordance with the length of head and amount of compression in draft gear it is of no special value, and, therefore, would suggest that the Secretary be authorized to eliminate this dimension from Sheet M. C. B. 23.

In conclusion, the committee desires to express their thanks to the various railways visited by the subcommittee for the courteous treatment accorded and the facilities extended them in making their investigations. The association is also indebted to the railways previously enumerated for the couplers which were donated for test purposes and to the Pennsylvania Railroad in particular for the large number of couplers donated and for the facilities and expert assistance given in testing these couplers.

The report is signed by:—R. L. Kleine (Penna.) chairman; F. W. Brazier (N. Y. C. & H. R.); J. F. De Voy (C. M. & St. P.); Henry La Rue (C. R. I. & P.); F. H. Stark (Pitts. Coal Co.); H. C. Trimyer (S. A. L.) and G. W. Wildin (N. Y. N. H. & H.).

Mr. Hennessey: I move that the report be accepted, the committee continued and a proportionate vote of thanks for the work they have put in on this job be tendered to the committee.

The motion was carried.

Mr. Schroyer: I move that the recommendations of the committee in the last part their report be adopted as submitted. The motion was carried.

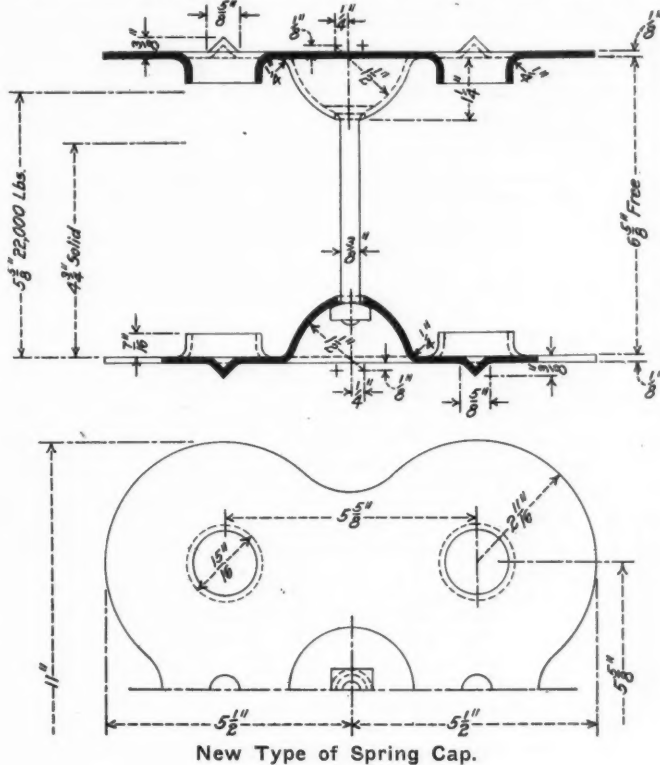
A report drawn up by the joint committee on Joint Interchange and Inspection Bureaus as presented to the executive

#### SPRINGS FOR FREIGHT CAR TRUCKS.

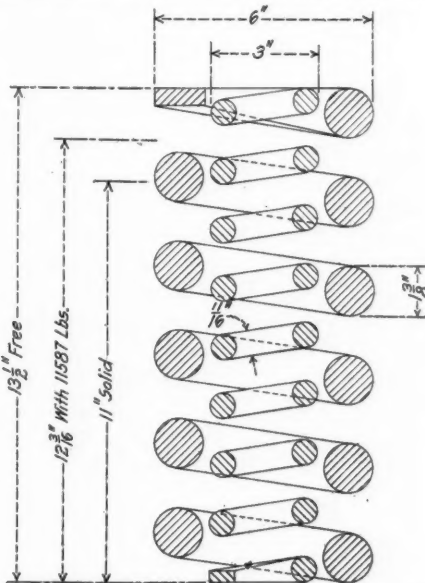
The committee in their report of progress states as follows:

Springs now used under freight cars take permanent set, have too little range of deflection, and sometimes break in service. Some manufacturers are preparing to make experiments to develop a scheme involving the use of more reliable material and more uniform temper, but to date these experiments have not progressed sufficiently far for positive recommendations.

The indications are that relief will be obtained by heat treatment of steel and careful tempering, which will permit the use of higher allowable stresses when springs are compressed solid. The steel at present used has about one per cent. carbon, and



when springs are compressed solid the stress is between 80,000 and 85,000 lbs. per sq. in. With carefully tempered, heat-treated steel, this stress can be increased to 100,000 lbs. per sq. in., and



Spring H for 140,000 lbs. Cars (Arch Bar Trucks).

Two bars, 1st bar  $1\frac{1}{8}$  in. dia.  $116\frac{1}{4}$  in. long, tapered to  $123\frac{1}{2}$  in. 2nd bar  $1\frac{1}{16}$  in.  $116\frac{1}{4}$  in. long, tapered to  $119\frac{1}{8}$  in.  
Normal wt. 1st bar 48 lbs. 12 oz., minimum wt. 47 lbs. 5 oz. 2nd bar 12 lbs. 3 oz., minimum wt. 11 lbs. 13 oz.  
Outside dia. 1st coil 6 in., 2nd coil 3 in.  
Heights, 1st coil  $13\frac{1}{2}$  in. free, 11 in. solid,  $12\frac{3}{16}$  in. 9270 lbs., capy. 17636 lbs. Heights, 2nd coil  $13\frac{1}{2}$  in. free, 11 in. solid  $12\frac{3}{16}$  in. 2317 lbs., capy. 4414 lbs.  
Cluster of Springs. Heights,  $13\frac{1}{2}$  in. free, 11 in. solid,  $12\frac{3}{16}$  in. 11587 lbs., capy. 22070 lbs.



W. F. KIESEL, JR.,  
Chairman, Committee on Springs for  
Freight Car Trucks.

committee of the Master Car Builders' Association, and to the Association of Transportation and Car Accounting Officers was distributed to the members for their information.

possibly to 120,000 lbs. per sq. in. without producing permanent set or breakage, and the resultant decrease in diameter of wire will give a greater range of deflection within the limited space now available in trucks. Better tempering of the steel now used can be obtained, and should be required. To avoid obtaining the springs either too hard or too soft, a specification for physical test is necessary.

Attention was directed to the impossibility of making the spring caps, shown on Sheet H, of  $\frac{1}{8}$ -in. material without change in the central depression. In view of the situation, the committee recommends that no changes be made at this time in the design of the springs, and that the design of the spring caps be modified, as shown herewith.

[The modified spring cap of Spring A is shown herewith as an example of the changes which have been made.—EDITOR.]

The committee desires that it be furnished with the dimensions of available space, or preferably prints of springs, which have been designed for 140,000 lbs. capacity cars, for consideration in connection with making an M. C. B. design for such springs. As an example, an illustration of a spring used for that purpose is shown.

These can be used either with or without spring caps.

It is also recommended that before assembling the springs they should meet the following physical test:

1. Every coil of each spring must be compressed solid with shock not less than six times.
2. At least 10 per cent. of each kind of coils must be weighed and measured.
3. The weight of each coil must not be less than the minimum weight specified.
4. The outside diameter of coil must not vary more than 1-16 in. above or below the given dimension.
5. The free height must not exceed, but may be less than the given dimension.
6. The load height must not be less than, but may exceed the given dimension.
7. If any coil of the 10 per cent. selected does not meet these requirements, all coils of the same kind must be checked, and those which do not meet the requirements for weight and dimensions must be rejected.

The committee believes that the adoption of these preliminary rules will tend to give some relief from spring troubles, pending the development of better material and tempering.

The report is signed by:—W. F. Kiesel, Jr. (Penna.), chairman; T. A. Lawes (N. Y. C. & St. L.); J. R. Onderdonk (B. & O.) and J. Hainen (So. Ry.)

The report was accepted and the recommendations referred to letter ballot.

### TRAIN LIGHTING.

The committee has gone over carefully the suggestions as to recommended practices given in the report to the 1911 convention, and have also given careful consideration to the various points as brought out by the committee on standards of the Association of Railway Electrical Engineers at their 1911 convention, and desire to change our suggestions as to recommended practices given in our report of 1911 to read as follows:

#### GENERAL.

1. That in electrically lighted cars the following voltages should be used:

60 volts (nominal) for straight storage, head-end and axle-dynamo systems.

30 volts (nominal) for straight-storage and axle-dynamo systems.

2. That each electrically lighted car be provided with a notice giving the following information, and that this notice shall be posted in the switchboard locker:

#### \*System.

Type of generator.

Type of regulator.

Voltage of system.

Ampere hours capacity of battery at 8-hour rate.

Number of sets of battery in parallel.

Nominal charging rate ..... amps. .... max. amps.

Size of train line wires—B. & S.

Number of train line wires — (2 or 3).

Capacity of generator ..... amps.

Axle pulley ..... in. diam.

Generator pulley ..... in. diam.

Length of belt ..... ft. .... in.

Wiring diagram (show location and capacity of fuses).

\*State whether axle dynamo, straight storage, and if used on head-end system.

3. That the rules of fire underwriters shall cover all car wiring.

4. That all wiring under car to the switchboard shall be run in conduits.

5. Standard lamps for car-lighting service should be in accordance with dimensions as shown on Exhibit I.

6. That where train-line connectors are used, a connector having dimensions as shown on Exhibit A shall be used and located as previously shown. If only two wires are used they shall be connected to the outside terminals and the female connector on each end of the car shall be stenciled: "Not for use on head-end system."

7. That each electrically lighted car equipped with batteries shall be provided with two charging receptacles with swivel supports, as shown in the details on Exhibits B, C and D, installed one on each side of the car, as shown on Exhibit E, the outside annular ring to be the positive.

#### Control and Protection of Parts.

8. That each electrically lighted car shall be provided with a switchboard upon which shall be mounted switches, fused switches or terminals. The switches, fuses or terminals to protect and completely disconnect the following parts: Train line; battery; axle dynamo, and circuits for lamps, fans, etc.

The axle-dynamo terminals to control the positive and negative armatures and the positive field of the dynamo. Each of the above switches, fuses or terminals to be plainly marked, designating the part controlled, the positive terminal to be on the right side facing the board.

9. Where a main lamp switch is used, or where fuses controlling all lamps are used, they shall be so stenciled in plain letters.

10. The switchboard or regulator panels of electrically lighted cars shall be provided with fuses for the protection of the parts given below and with the type of terminals as specified.

*Train Line.*—Terminals for reception of flat fuses shall be provided  $2\frac{1}{2}$  in. between centers; stud or screw to be — in. diam., with — threads per in.

*Battery.*—Optional. Fuse terminals, if used, shall be same as for train line.

*Main Line Switch.*—Optional. Fuse terminals, if used, shall be same as for train line.

*Circuits.*—For lamps, fans, etc., fuse shall be of the Edison screw-shell type for both positive and negative.

*Axle Generator.*—Positive armature fuse terminal; terminals to have N. E. C. code standard 150 amperes knife blade contact clips mounted with 4-in. clearance between clips. Negative armature fuse terminal optional. If used, terminal shall be same as positive. Positive field optional. If used, to have ferrule type clip mounted with 1-in. clear space between clips and to take N. E. C. code standard, 0 to 30 amperes.

NOTE.—Capacity of fuses, as designated above, to be such as to properly protect the parts in question.

11. That each electrically lighted car equipped with battery box or boxes shall have provided a fuse block, mounted in a suitable metal box at the positive and negative terminals of each set of batteries, and that the fuse block shall be in accordance with the detail as shown on Exhibit F, and installed on the car substantially as shown on Exhibit E. Knife-blade fuses shall be provided with a capacity of between 101 and 200 amperes.

12. That where axle dynamos are used, negative, positive and dynamo field shall be fused as close as possible to the dynamo and prior to the said leads either entering the conduits or being secured to the bottom of the car. The above fuses to be used for emergency service only and to be at least one hundred per cent. above the capacity of the fuses on the switchboards protecting the same leads.

13. All wires or terminals must be marked for identification.

#### Batteries.

14. That batteries as a set shall be connected up with a positive pole to the right, facing the car.

15. Where lead storage batteries are used they shall be preferably installed in double compartment tanks substantially as shown on Exhibits G, H and I.

16. That where double compartment tanks are used, the connections and arrangements of battery terminals are to be as previously indicated.

17. Battery boxes shall have provided in each door a vent, substantially as shown on Exhibit K.

#### Axle Dynamo.

18. That a straight pulley seat be provided for the axle pulley. That if a bushing or sleeve be used it should preferably be secured to the axle, independent of the pulley. Bushing to have an external diameter of  $7\frac{1}{2}$  in. and to be  $8\frac{1}{2}$  in. long, turned straight. That the pulley hub have a uniform internal diameter of  $7\frac{1}{2}$  in., the length of the hub to be  $6\frac{1}{2}$  in., the face of the pulley to be 9 in. or wider if flangeless, and 8 in. if flanged. That the generator pulley be flanged, crowned and perforated, and have a 7-in. face.

19. That when facing the end of the truck on which axle



generator is mounted, the pulley or sprocket shall be on the right-hand side.

In the above the following changes have been made from the recommended practices as given at the 1911 convention:

The information originally shown on Exhibit A has been incorporated in the body of the report and the following items added to recommended practice:

*Item No. 2*—Type of generator. Type of generator. Voltage in place of number of cells and series. Size of train-line wires. Number of train-line wires. Capacity of generator. Length of belt.

The following items being omitted: Cut in voltage. Amperes no light. Amperes full light.

*Item No. 5*—Added.

*Item No. 6*—The principal dimensions of Gibbs No. 3-G train-line connector have been shown on Exhibit A, and reference to the specific type of connector omitted from the body of the report.

*Item No. 8*—Item D, covering circuits for lamps, fans, etc., has been added and the reading slightly changed.

*Item No. 10*—Details covering type of fuse terminals have been given.

*Item No. 11*—Item has been changed so as to provide for a fuse at the positive and negative terminals of each set of batteries and fuses specified with a capacity of between 101 and 200 amperes in place of 150 amperes.

*Item No. 13*—Added.

*Item No. 14*—The words "as a set" have been added after the word "batteries," first line.

*Item No. 15*—Has been changed so as to cover only lead batteries.

*Item No. 17*—The word "substantially" added.

*Item No. 18*—The word "preferably" has been added in the second sentence.

*Exhibit A*—Canceled, the information being shown in the body of report and new Exhibit A made showing principal dimensions of recommended train-line connector.

*Exhibit E*—Detail of fuse box crossed off; dimension of center line of charging receptacle to the needle beam omitted. Sketch added showing arrangement of fuses with two batteries in parallel.

*Exhibit F*—Detail of fuse box removed, showing only details of fuse block and clip.

*Exhibit G*—Detail of battery terminal connectors omitted. Hole omitted at handle plate.

*Exhibit H*—Detail dimensions of plates slightly changed. Re-design of bridges shown.

*Exhibit I*—Detail of handle changed and detail of battery terminals omitted.

*Exhibit K*—Part of note covering application of copper screen to vent, cut out.

*Exhibit L*—Standard train-line lamps added.

In addition to the above report on recommended practices the committee desires to make the following suggestions to the Association for consideration:

(1) The adoption of standard size straight axles for different journal sizes for use with axle dynamos. This in view of the adoption of the axle device throughout the country, and the fact that with the present standard tapered axle it is very difficult to properly secure the axle pulley or bushing. The straight axle would result in less maintenance cost in axle pulleys and belts and improvements in service. A number of roads have adopted the straight axle, and if this practice spreads, the diameter of the axle should be standardized in order to minimize the different sizes of bushings or pulleys for car-lighting equipment.

(2) The design and adoption of standard arrangement of axle-dynamo suspension; the axle-dynamo people arranging to provide necessary lugs so that their dynamos will be applicable to the M. C. B. standard suspension. This suggestion is made in order that a safe suspension may be provided for all equipment and that the generators as manufactured by the various manufacturers will be interchangeable.

(3) If the train-lighting committee is continued, the committee would like to be advised as to whether or not it is desired that they include in their investigation recommended practices as to maintenance and repairs of batteries and other electric-car lighting apparatus, and maintenance and repairs of axle generators.

The report is signed by:—T. R. Cook, (Penna.), chairman; C. A. Brandt, (C. C. C. & St. L.); Ward Barnum, (L. & N.); J. H. Davis, (B. & O.); E. A. Benson, (Pullman Co.); D. J. Cartwright, (L. V.), and E. W. Jansen, (I. C.).

Mr. Cook presented the report, and at its conclusion said:

I would suggest that the natural way to deal with this report would be to consider first, the body of the report, as to whether it should be submitted to recommended practice, and

second, to consider the suggestions offered by the committee in the last part of the report.

#### DISCUSSION.

C. A. Seley (C. R. I. & P.): I am of the opinion that this report is a very good compendium of train lighting practice, and represents a very large amount of very intelligent effort, I believe, on the part of the committee, not only this year, but on the part of the committee's preceding years. I would move the adoption of the report, and couple with that motion that it be sent to letter ballot, except the three suggestions, which should be referred to the executive committee.

R. L. Kleine (Penn.): I would like to amend Mr. Seley's motion, by providing that the report be referred to letter ballot by items. There are possibly some detail objections to some portions of the report, and if we refer it as a whole, we will not secure such a good result in the vote as if we refer it by items, in which event we will get the benefit of such items as may carry.

D. J. Cartwright (L. V.): Last year this report was practically submitted to a vote *Yes* or *No*. The result was that we got no definite action except that the thing was thrown out. This year we would like to have each separate item voted upon in the letter ballot, and then we will have something to work on.

Mr. Seley's motion was carried as amended.

#### SUPERHEATERS APPLIED TO OLD ENGINES.

That the application of superheaters to old or existing locomotives is an economical practice, is demonstrated by the fact that more than one thousand superheaters have been installed in old locomotives during the past year. The economies obtained by this practice have proved that the application of the fire tube superheaters furnishing highly superheated steam to old engines is no longer dependent upon the time of the application of new fireboxes and flue sheets, but upon the time that the engine can be spared from service long enough for the installation of the superheater.

Many of the largest railways are at the present scrapping serviceable flue sheets for the purpose of applying superheaters to their existing power and are installing superheaters on old engines in allotments each month, as the engines pass through the shop for a general overhauling. The loss sustained by the practice of throwing away serviceable flue sheets is more than compensated for by the economy in fuel obtained by the superheater locomotive. Of course, in instances where the flue sheets are to be scrapped away, the cost of the application of the superheater is greatly reduced.

The application of the fire tube superheater may be made to any of the existing types of locomotives, provided only that they are equipped with piston valves. There are many locomotives in this country filling the requirements as far as piston valves are concerned that were built several years ago and are deficient in boiler capacity. It is not possible to haul the tonnage with these engines that the cylinders and adhesive weight should permit because of the inability of the boiler to furnish steam. The use of highly superheated steam in these engines invariably overcomes the difficulty and makes it possible to increase the diameter of the cylinders, providing the weight on drivers is sufficient and the running gear is strong enough to take care of the increased piston thrusts.

Another important feature in the application of superheaters to old locomotives is the fact that the life of the boiler may be prolonged without reducing the rating of the engine or decreasing its capacity as a dividend earner. It becomes necessary, often times, on account of the age of a boiler, to reduce the pressure in order to insure safety in operation. In many instances where it has been found necessary to reduce the boiler pressure, fire tube superheaters have been advantageously applied and by increasing the diameter of the cylinders the original tractive effort of the engine has been maintained and in some instances has been increased. With the application of the superheater

to these old engines they have invariably operated with a marked increased economy in coal and water. Where it has been found impossible to increase the size of the cylinders on account of the thinness of the walls new cylinders have been applied and the economy has been sufficient to cover the cost of the application of the superheater and the new cylinders within one year.

Added to these features which make it economical to apply superheaters to old or existing engines, is the fact that almost invariably when engines have been equipped with superheaters their rating has been increased in some instances this increase has been as much as 20 per cent. which makes the locomotive a better investment from the standpoint of a revenue earner.

#### CAR WHEEL REPORT.

An error was made in Fig. 8 in the committee report on car wheels, as published in the DAILY RAILWAY AGE GAZETTE, June 13, page 1316. The height of the lug on the tire should have been  $1\frac{1}{4}$  in. instead of  $1\frac{3}{4}$  in. as shown.

#### AN APOLOGY TO THE WESTERN BALL PLAYERS.

The Daily owes an humble apology to the Western base ball players, and hereby makes it. Stanley Midgley calls attention to the fact that the item in yesterday's Daily, giving the results of past games, credited the East with having won last year and with having won four of the seven that have been played between East and West. The fact is, that the West won last year, 12 to 11, and that it is the West that has won four games out of seven. It was a hard fought battle in 1911, and the annals of the conventions as recorded in these columns should not mislead future generations as to this important matter. The East hopes to get revenge this year for last year's defeat; but the West manifests no inclination to yield up the pennant.

#### NOMINATIONS FOR SUPPLY ASSOCIATION OFFICERS.

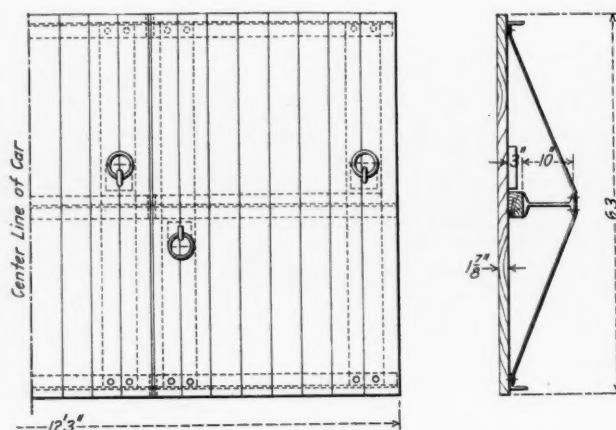
The Nominating Committee of the Railway Supply Manufacturers' Association has nominated the following for the coming year: For President, Samuel G. Allen, Franklin Railway Supply Co.; for Vice President, B. A. Hegeman, Jr., United States Metal & Manufacturing Co.

#### M. C. B. OBITUARY COMMITTEE.

President Stewart of the M. C. B. Association has appointed the following members as Obituary Committee in relation to the deaths of the members named: For Julius Krause (Penna.), R. L. Kleine; for E. Fisher (T. H. & B.), J. Christopher; for W. H. Lungren (P. B. & W.), J. Milliken; for J. F. Mann (P. M.), W. H. Rourk; for G. T. DeVilbiss (H. V.), M. A. Kinney; for F. H. Scheffer (N. C. & St. L.), A. G. Kautman; for R. N. Durborow (Penna.), J. T. Wallis; for G. W. Dixon (Pitts., Lisbon & Western), J. W. Taylor; and for R. F. McKenna (D. L. & W.), H. C. Manchester.

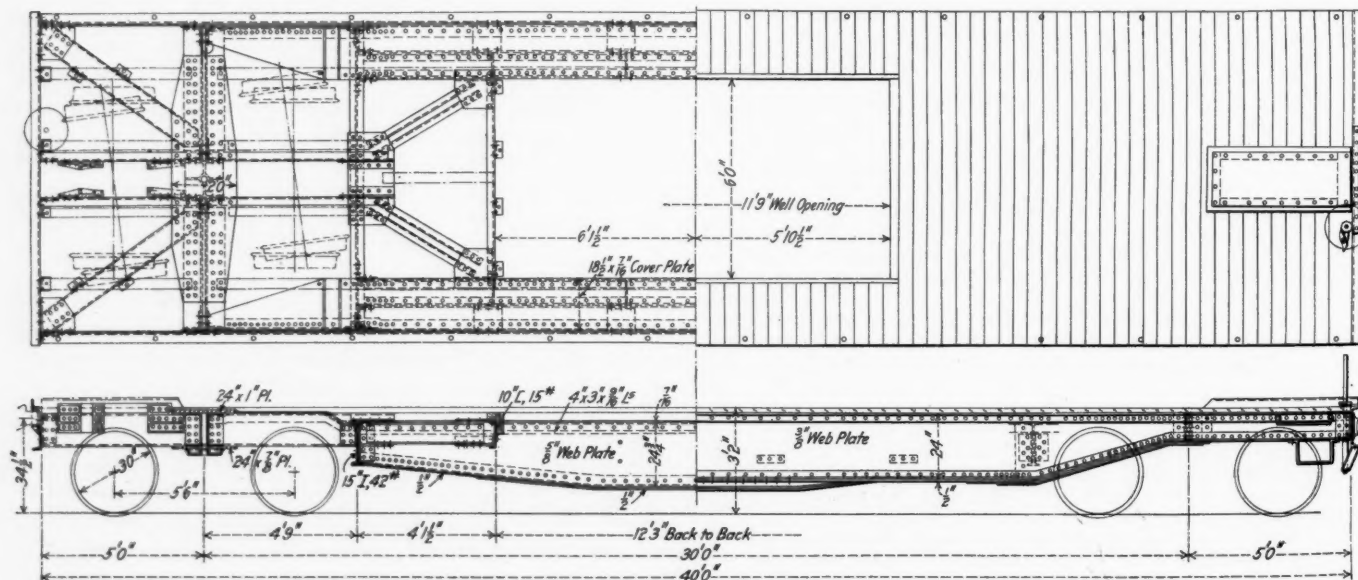
#### WELL CAR OF 75 TONS CAPACITY.

The Erie Railroad has recently received from the American Car & Foundry Company, New York, six steel well cars of 150,000 lbs. capacity. These cars were built at the Berwick, Pa., shops from the car builder's designs they are 40 ft.  $6\frac{3}{16}$  in. in length over the end sills and weigh 49,300 lbs. They have a well opening of 11 ft. 9 in. in length and 6 ft.



Well Cover for Erie Well Car.

in width. The side sills are built up of a  $\frac{3}{8}$  in. web plate reinforced at the top and bottom, both inside and outside, by 4 in. x 3 in. x  $\frac{1}{2}$  in. rolled steel angles. A built up side girder extends just inside the side sill and is connected at each end to a 15-in., 42-lb. I-beam crossie, which extends across the car from side sill to side sill. This side girder is built up of two  $\frac{5}{16}$  in. web plates, each being



Elevation and Plan of 75-Ton Well Car.

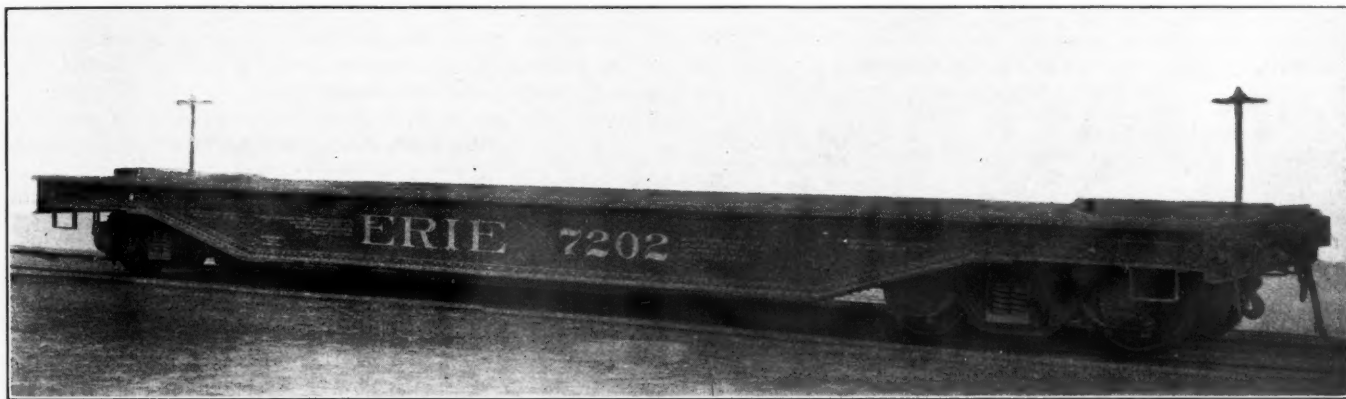


reinforced at the top by a 4 in. x 3 in. x  $\frac{1}{16}$  in. angle and a  $\frac{7}{16}$  in. cover plate, which is also secured to the side sill inside top angle. The bottom of the side girder is reinforced by 4 in. x 3 in. x  $\frac{5}{8}$  in. angles which are secured to the inside of the web plate. The draft sills consist of two 12-in., 25-lb. steel channels and extend from the end sill through the bolster to the crosstie, and a 15-in., 33-lb. channel is used for the end sill. The body bolster is built up of a  $\frac{3}{4}$ -in. web plate with 7 in. x  $3\frac{1}{2}$  in. x  $\frac{1}{16}$  in. angles at the top and bottom and on both sides of the web, with top and bottom cover plates. Two diagonal braces consisting of two 8-in. 13.75-lb. channels placed back to back extend between the crosstie and the well end member. They are tied to the well end member and to the crosstie by gusset plates. The well end member is a 10-in., 15-lb. channel.

The well cover is made up of a 10-in., 25-lb. I-beam center

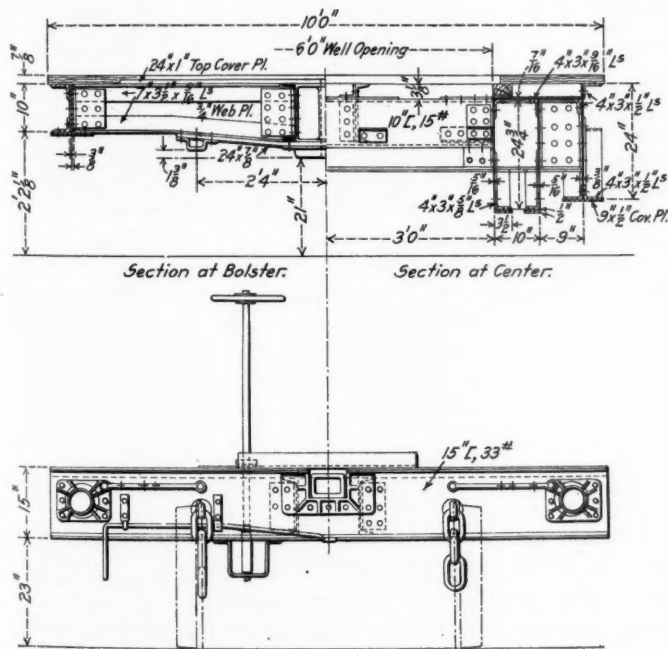
#### M. C. B. REGISTRATION.

Appler, A. B., M. E., De'a. & Hudson Co., Marlborough-Blenheim.  
 Barry, J. J., M. M., Norfolk & Western R. R., Raymond.  
 Bawden, Wm., Wiggins Ferry Co., Watkins.  
 Cartwright David J., Elec. Engr., Lehigh Valley Ry.  
 Connor, J. T., M. C. B., 816 San Jacinto St.  
 Dow, Geo. N., G. M. I., L. S. & M. S. Ry., Chalfonte.  
 Gibbs, A. W., C. M. E., Penna. R. R., Chelsea.  
 Gray, G. M., S. M. P., Bessemer & Lake Erie R. R.  
 Grewe, H. F., Wabash, Pittsburgh Terminal Ry., Richmond.  
 Grove P. L., A. E. M. P., Penna. R. R. Co., Chalfonte.  
 Hayward H. S., Consulting Engr., West Jersey Sea Shore R. R., Chalfonte.  
 Henry, J. M., M. M., Penna. R. R., Chalfonte.  
 Jansen, E. W., Elec. Engr., Ill. Central R. R., Dennis.  
 Keiser, C. B., M. M., Penna. R. R. (Penna. Term. & Tunnel Div.), Traymore.



75-Ton Well Car; Erie Railroad.

member secured by  $\frac{1}{4}$  in. steel plate straps to two  $\frac{3}{12}$  in. x 3 in. x  $\frac{3}{8}$  in. angle side members. The flooring on the well cover and on the car is of wood. Among the specialties applied to these cars are the Miner friction draft gear,



Underframe Sections of 75-Ton Well Car.

the Sharon couplers and the New York air brake. The trucks upon which the cars are mounted are equipped with the Andrews cast steel side frames and bolster and have a capacity of 150,000 lbs.

Kendig, R. R., C. M. E., N. Y. Cen. Lines, Marlborough-Blenheim.  
 Knox, W. J., M. E., Buff., Roch. & Pitts. Ry.  
 Libby, J. E., Swift Refr. Transit Co., Traymore.  
 Meloy, H. C., Chief Electrician, L. S. & M. S. Ry., Traymore.  
 Mengel, John C., M. M., Penna. R. R. Co., Chalfonte.  
 Meredith, H. P., Penna. R. R., Chalfonte.  
 Monfee, A. J., S. M., B. S. R. R., Young's.  
 Nelson, E. D., Penna. R. R. Co., Strand.  
 Ott, William B., Asst. Engr. M. P., Penna. R. R. Co., Chalfonte.  
 Parks, R. H., M. C. B., Merchants' Despatch Transportation Co., Chalfonte.  
 Shoemaker, C. A., German-American Car Lines, Haddon Hall.  
 Smith, Benjamin T., Gen'l Foreman, W. J. & S. S. R. R.  
 Smith, Henry J., Gen'l Car Insp., D. L. & W. R., Monticello.  
 Spoor, C. E., M. C. B., Buffalo & Susquehanna R. R., Haddon Hall.  
 Stillwagon, Geo. W., M. C. B., Pitts., Shawmut & Northern Ry., Lexington.  
 Thomas F. H., V. P. & Gen. Mgr., Bellefont Central R. R., Craig Hall.  
 Vincent, M. M., G. M., National Car Lines, Traymore.  
 Walsh, F. J., M. M., Chesapeake & Ohio Ry., Marlborough-Blenheim.

#### M. C. B. GUESTS.

Adams, J. W., B. & O., Lexington.  
 Albers, L. H., Suor. Air Brake, N. Y. Central, Francis.  
 Allcroft, A. E., Clk. Pur. Dept., Penna. Lines West, 12 South Arkansas Ave.  
 Anderson, J. B., Penna. R. R., Pgh. Div., Runnymede.  
 Andrewcetti, Joseph Asst. Elec. Eng., C. & N. W., Dennis.  
 Baker, G. T., Foreman Car Shops, P. R. R., Worthington.  
 Barrett, W. M., Adams Ex. Co., Marlborough-Blenheim.  
 Bates, R., West Jersey & Seashore R. R. Co.  
 Best, J. I., Ch. Clerk Motive Power Dept., P. & R., Dennis.  
 Blackburn, R., Erie.  
 Bloxham, Chas. M., Union Tank Line, Cheltenham Revere.  
 Bosworth, W. M., M. E., Kansas City Southern, Raleigh.  
 Brogan, J. P., D. L. & W., Schlitz.  
 Bromley, Joseph, Suot. Safety Appli., Interstate Commerce Commission, Monticello.

Brown, I. S., Draftsman M. E. Office, P. R. R., Hotel Kenderton.  
 Chambers, Andrew, Engr., P. R. R.  
 Chestnut, Jas., P. R. R.  
 Childress, B. F., Young's.  
 Crysler, P. A., Asst. M. C. B., Canadian Pacific, Shelburne.  
 Currier, H. C., Chf. Clerk Pur. Dept., M. C. R. R. Co., Shelburne.  
 Davis, H. E., Gang Leader, Penna. R. R.  
 Davis, W. E., Foreman Nice Shop, Penna. R. R.  
 Dickinson, W. J., Pullman Co., Shelburne.  
 Dobson, F. L., M. P. Inspector, P. R. R., Chalfonte.  
 Dolan, J. C., Pur. Agt. Office, Denver & Rio Grande R. R., Arlington.  
 Donahue, C. M., P. R. R., Chalfonte.  
 Downs, M. D., Penna. R. R. Co. (Hudson Div.), Haddon Hall.  
 Drayer, U. S., Penna. R. R. Co.  
 Duffy, A. F., Interstate Commerce Comm., Monticello.  
 Eliot, H. H., Jr., P. R. R., Haddon Hall.  
 Elliott, Edward O. P. & R.  
 Eyler, J. W., American Ice Co., Raymond.  
 Formwalt, F. E., P. R. R., Seaside.  
 Fosnot, G. N., Cumberland Valley, Chalfonte.  
 Foster, Lewis, West Jersey & Seashore R. R. Co.  
 Fox, Geo., N. Y. C., Pennhurst.  
 Frame, R. E., Haskell & Barker Car Co., Gladstone.  
 Frost, F. R., A. T. & S. F., Dennis.  
 Garber, F. M., Baltimore & Chio, Harmony House.  
 Garey, Martin, L. & H., Benton.  
 Gatshall, H. M., Northern Central, Ellwood.  
 Geisking, C., P. R. R., Seaside.  
 Gill, John, Young's.  
 Gracie, A. M., P. R. R., Ellwood.  
 Hassler, H. G., P. R. R., Young's.  
 Johnson, J. C., Penna.  
 Jones, G. R., N. Y. C. & H. R. R., Chalfonte.  
 Jones, W. F., N. Y. C. & H. R. R., Chalfonte.  
 Jones, W. L., N. Y. C. & H. R. R., Chalfonte.  
 Kauffman, D. A., Penna. R. R., Worthington.  
 Keen, C. J., American Rys.  
 Kern, W., B. & O. R. R.  
 Kidd, C. M., Norfolk & Western, Raymond.  
 Kincaid, B. M., Penna. R. R., Malatesta.  
 Lamerding, F. A., P. R. R., Haddon Hall.  
 Leet, W. B., P. Ry.  
 Leslie, R. J., P. R. R., Seaside.  
 Lyon, A. N., K. & M., Haddon Hall.  
 McCarthy, J. H., P. R. R., Young's.  
 McDonald, M. S., C. & O., Marlborough-Blenheim.  
 McGary, A., N. Y. C. & H., Young's.  
 Markland, W. H., Penna. R. R., Seaside.  
 Metz, Cecil, P. R. R., Haddon Hall.  
 Middleton, J. A., Lehigh Valley.  
 Millen, Thos. C.  
 Minowa, E., South Manchuria Ry., Marlborough-Blenheim.  
 Mooney, T. H., Sunset Central Lines, Lexington.  
 Morris, W. M., P. R. R.  
 Muchnic, Charles M., American Loco. Co., Marlborough-Blenheim.  
 Murray, John A., D. L. & W.  
 Newbury, E. H., P. R. R., Lexington.  
 Newland, Lewis, N. Y., N. H. & H., Wadsworth.  
 Norberg, A., Pittsburgh & Susquehanna R. R., The Edna Cottage.  
 Ogilvie, Jas., Board of Ry. Commissioners, Dunlop.  
 Ozawa, N., South Manchuria Ry., Traymore.  
 Paxton, C. M., Scranton Ry., Chalfonte.  
 Pease, O. D. A., Penna. R. R., Young's.  
 Pendergrast, A. P., B. & O. R. R., Shelburne.  
 Phetteplace, L. H., C. C. & O. Ry., Haddon Hall.  
 Potts, John D., Ches. & Ohio Ry., Shelburne.  
 Powers, M. J., Denver & Rio Grande R. R., Arlington.  
 Pries, Herman, Haskell & Barker Car Co., Gladstone.  
 Purt, A. F., P. R. R., Boscobel.  
 Quinn, C. H., Norfolk & Western, Traymore.  
 Rafter, E. L., P. R. R.  
 Reeve, W. K., N. Y. C. & H. R.  
 Rice, W. L., P. & R. Ry., Monticello.  
 Riley, P. C., Penna. R. R., Malatesta.  
 Sandman, A. G., B. & O. R. R., Haddon Hall.  
 Sheldon, F. R., N. Y., N. H. & H., Wadsworths.  
 Smock, F. A., Penna., Chalfonte.  
 Stevens, Geo. W., C. & O. Ry., Shelburne.  
 Stewart, H. A., Armour Car Lines, Marlborough-Blenheim.  
 Thayer, C. H., Penna. R. R., Ellwood.  
 Thomas, Francis, Bellefonte Central, Craig Hall.  
 Totten, E. C., N. Y. C., Pennhurst.  
 Trigs, J. H., P., B. & W., Wellsborough.  
 Wahl, Geo., D., L. & W., Schlitz.  
 Wallace, F. C., Erie.

Wallace, J. E., Wilmington & Southern Tract. Co., Haddon Hall.  
 Walsh, E. J., Pitts. Coal Co., Shelburne.  
 Walther, G. C., Penna. R. R., Young's.  
 Watkins, G. H., Penna., Chalfonte.  
 Whittaker, F. M., C. & O., Shelburne.  
 Wightman, D. A., Shelburne.  
 Wine, W. E., A. C. L., Young's.  
 Wintrop, Wm., P., B. & W., Wellsborough.  
 Woolwine, Emory, Virginia, Continental.  
 Wray, R. W., Penna. R. R., Craig Hall.  
 Wynn, F. S., Southern Ry. Co., Traymore.

#### THE M. C. B. DANCE.

The dance last night, though lacking the spectacular features of the balls of previous years proved most popular. It seemed that the floor was as filled as last year, and one noted no difference in the number of ladies who were present. The informal character of the affair, particularly noticeable through the omission of the grand march, was further emphasized by the members of the Entertainment Committee wearing business clothes, their example being followed by many others.

#### FOREIGN RAILWAY NOTES.

Under a concession formerly held by Belgians, but now worked by Chinese, a line is slowly being constructed in China from Honan, a city of Honan province, to Sianfu, the capital of Shensi province, as a part of the Peking-Hankow system. In February, 1911, coolies were at work on the embankment of this line near Sinan, a small city about 20 miles from Honan. Three years have been occupied in the work so far done. It is understood that the company expects to push the construction of the line as soon as financial arrangements can be made. The board of communications at Peking has planned an extension of this line to Lanchow, the capital of Kansu province, and the survey for this extension was completed in 1911. The board of communications has also announced its intention of extending this line from Lanchow to Ilifu, on the farthest frontier of the empire, the terminus of the proposed extension of the Kalgan-Suiyuan line, about 1,250 miles distant. Surveys for this great extension have been ordered to be commenced immediately.

The Yangtze valley railways in China are in some respects the most interesting problems in the country. The country they serve, is in many respects the richest portion of the empire, and under ordinary circumstances would be the most promising. However, most of the railways, both those constructed and those proposed, parallel the Grand Canal north and south and the Yangtze river east and west. The result is that the vast mass of freight is still carried in native boats, and will continue to be so carried in the future, in spite of railway facilities. Only rich cargoes, like silks, or cargoes of material that can be handled to advantage by machinery or by standard equipment, like coal or ore, can be counted upon by the railways. For example, the Shanghai-Nanking Railway, one of the best equipped of the new lines in the country, well built and well started by foreign promoters, has found it impossible to make money so far, because of the competition of Yangtze river steamers. The Shanghai-Hangchow line, while apparently enjoying a good business and in a position to prosper, has been in the public eye for some time as a result of troubles in the Chekiang Railway Co. and allied interests, and questions of management have so far mixed the situation that the exact financial position of the railway is uncertain, although admitted losses are great. It is announced from Peking that as a result of the general unfavorable situation in the company the government is to take over the line and carry it forward as a government enterprise.



## Conventionalities.

Speaking of this weather—can you beat it?

As Friend Bullard aptly puts it, we're here for business; not business.

Mr. and Mrs. Mark A. Ross, Chicago, are at the Marlborough-Blenheim.

We have been wondering why they put Treasurer Lord in a cage this year.

R. M. Mitchell, superintendent of the Barney & Smith Car Company, returned to Dayton last evening.

The hotel waiters seem to be the only people who know they are dressed according to the rules of the game.

The challenge has been accepted and Harry Vaughan and Leigh Best will match ability on the golf links of the Country Club on Sunday.

George W. Lyndon, representing the Association of Manufacturers of Chilled Car Wheels, was an early arrival and registered at Haddon Hall.

W. J. McBride, president of the Haskell & Barker Car Company, cannot attend the meetings this year, business of importance preventing the trip.

Harvey G. Kittridge, general manager of the Kay & Ess Company, is attending the convention as usual. He is staying at the Marlborough-Blenheim.

R. L. Brown, who represents the National Lock Washer Company in Chicago, will join the sales force of the Barney & Smith Car Company on July 1.

Herbert Green, vice-president and general manager of the Alcohol Heating & Lighting Company, is a firm believer in alcohol—of the denatured variety.

Harry S. Whitehair has just joined the Chicago sales staff of McCord & Company. Mr. Whitehair was formerly connected with the Chicago Varnish Company.

F. M. Lucore, assistant to the general agent of the American Railway Association, was here yesterday. He was particularly interested in car interchange matters.

W. A. Bonitz, recently appointed general manager of sales of the American Vanadium Company, Pittsburgh, with headquarters at Pittsburgh, is attending the convention.

Judging by the gaily bedizened key to the city presented by Mayor Bacharach to President Stewart, a very large and brilliant time may be expected during the convention.

R. W. Bell, superintendent of machinery of the Illinois Central, is making an inspection trip, but will probably complete it in time to get to Atlantic City by next Sunday.

A. S. Goble, who during the last year has been in the sales department of the New York office of the Standard Steel Works, has been transferred to the Chicago office.

F. M. Whittaker, vice-president of the Chesapeake & Ohio, was an arrival Thursday from Richmond. He spent a part of the day at the meeting and among the exhibits.

D. Dunbar, manager of the Acme Supply Company, had reserved Pullman accommodations to Atlantic City, but was compelled to cancel them through the press of business.

J. T. McGrath, superintendent of rolling stock of the Chicago & Alton, is attending the convention with Mrs. McGrath. It is expected that considerable improvements will be made in the motive power on that road in the near future.

Frank W. Furry, general manager of the Ohio Injector Company, and his son, William S., assistant mechanical engineer of the same company, are among the convention visitors.

J. R. Cardwell and L. T. Canfield, president and vice-president, respectively, of the Union Draft Gear Company, arrived Wednesday morning and registered at the Traymore.

It will be regretted that Mr. and Mrs. W. E. Fowler will not attend the gatherings at Atlantic City this year. Mr. Fowler's health will not permit the visit, although he is greatly improved.

Fred. De Long, report says, is seriously engaged in writing a book entitled "Wild Spark Plugs I Have Known." In one chapter he explains, in less than a million words, why spark plugs grow loose.

J. H. Schermerhorn, assistant secretary and treasurer of the Joseph Dixon Crucible Company, is expected on Friday evening. Mr. Schermerhorn will be accompanied by his wife and they will stop at the Chelsea.

Harry Frost tried his best to force summer soon after his arrival at Atlantic City; but judging from the subdued clothes that he has worn since the first day, we take it that someone has tipped him off.

Mrs. C. L. Winey, wife of the secretary and treasurer of the Franklin Railway Supply Company, had been ill for the past three weeks with blood poisoning in the arm. She is reported to be recovering rapidly.

Walter Leach can certainly hand out compliments when he feels so disposed. If you want to hear something real nice, ask him what he thinks about the success of this year's conventions and who is responsible.

Colonel Lacy Williams and Major Grafton Dodd are in town with their famous "Virginia Guards." Napoleon's old grenadiers have nothing on them, for not even an Arizona sand storm could get by their double barrelled front.

F. O. Bunnell, of the Rock Island, is one of a large number of engineers of tests who are in attendance at the conventions this year. Mrs. Bunnell is with him and they are stopping at the Marlborough-Blenheim.

George W. Stevens, president of the Chesapeake & Ohio, is at the Shelburne and will stay here until Sunday. He spent yesterday afternoon amongst the exhibits on the pier. Mr. Stevens is recovering from a recent surgical operation.

Robert E. Frame, assistant to the president, and Herman Pries, general superintendent of the Haskell & Barker Car Company, arrived Wednesday and registered at the Gladstone Hotel. They will stay during both conventions.

W. P. Richardson, mechanical engineer of the Pittsburgh & Lake Erie, will be prevented from attending the conventions this year because of the pressure of work in connection with the drawing up of plans for new equipment.

George S. Allen, who for more than forty years was master mechanic for the Reading at Tamaqua, Pa., is attending the conventions. Mr. Allen began railway service 54 years ago and was one of the early members of the M. M. Association.

Miss Edna Postlethwaite, daughter of C. E. Postlethwaite, spent part of Wednesday on the pier with her father. She is a student at Swarthmore College, and was a guest here of one of her college chums, Miss Haines, of the Hotel Morton.

George T. Anderson, superintendent of the Chicago, New York & Boston Refrigerator Company, a member of the M. C. B. Association, has recently passed through a serious

illness, but is now well on the road to recovery. He will not be at Atlantic City this year.

E. D. Nelson, formerly engineer of tests of the Pennsylvania, with Mrs. Nelson and their two daughters, are stopping at the Strand. Mr. Nelson since leaving the Pennsylvania, has been very busy in the general consulting field, for which his long experience so well fits him.

Mr. and Mrs. J. F. Graham, of Portland, Oregon, heretofore regular attendants at the conventions, cannot make the trip



Miller of the Nickel Plate.

this year. Mr. Graham is assistant general manager of the Oregon-Washington Railroad & Navigation Company, and this year could not leave his office duties.

J. D. Murray, formerly mechanical engineer of the Delaware, Lackawanna & Western and later for several years located at Christmas Island in the Indian Ocean, is spending a few days at the convention meeting his old friends. He has been spending the past year in London.

Warren J. Lynch, vice-president of the American Steel Foundries, at New York, is this year for the second time attending the conventions as a supplyman. Prior to taking his present position, he was passenger traffic manager of the New York Central Lines, with office at Chicago.

Dr. J. M. Griffin, president and general manager of the Wheel Truing Brake Shoe Company, one of the regulars at the conventions, is at the Dennis. He has brought with him, as usual, his favorite billiard cues and with his friends will enjoy some leisure time at the 'gentleman's game.'

J. A. Pilcher, mechanical engineer of the Norfolk & Western, attended the meeting on Wednesday, ready to uphold the recommendations of the committee on Car Wheels, of which he is a member. He then left for Norfolk, but will return on Monday for the Master Mechanics' meetings.

W. O. Thompson, district master car builder of the New York Central & Hudson River and secretary of the Traveling Engineers' Association, reports a large increase in membership for that association and prospects for a still better convention than that of last year, if such a thing is possible.

E. A. Gilbert, who has attended the conventions for many years as a supply man, will be absent this year. He

has returned to "his first love," the Southern Pacific, as general inspector of motive power, and on account of a pressure of business will not be able to come to Atlantic City.

B. O. Yearwod, general foreman of the Virginian, has some great stories to tell about the new power which will shortly be placed in service on that road. The new Mallets will have a tractive effort of 138,000 lbs., working simple, and will be the largest and most powerful locomotives ever built.

F. R. McFeatters, Port Perry, Pa., superintendent of the Union Railroad, was one of the first to arrive at the scene of action and is stopping at the St. Charles. He reports a most congested condition at Port Perry, owing to the press of business, complicated by labor conditions in that section.

Mr. and Mrs. E. W. Pratt arrived from Chicago Tuesday afternoon and are guests of the Marlborough-Blenheim. The absence of their daughter, Miss Verona Pratt, will be noted with regret this year by the many friends of the young lady. On June 8 in Chicago Miss Pratt became the bride of Robert Bernardd Barton.

It seems that J. Alexander Brown is not the only one here wearing a badge that resembles the label sometimes found on top of a box of corn plasters. Uncle Bi'l Lewis is sporting a duplicate of Brown's badge; but not being in the advertising business, he wears it at the bottom of his vest instead of on the lapel of his coat.

L. F. Hamilton, publicity and specialty manager of the National Tube Company, is not here this year, because of a long period of illness. Mr. Hamilton has been confined to his bed for nearly four of the last six months; but he is



Charles F. Thiele Enjoying a Good Smoke.

now very much improved. He is spending a few weeks at his old home in Kewanee, Ill.

Those who have closely observed the work of C. Haines Williams, Jr., the new vice-president of the Chicago Railway Equipment Company, at the conventions, will readily credit the rumor of his early appointment as ambassador near the court of St. James. His earnest courtesy and his courteous earnestness are irresistible.



C. D. Young, engineer of tests of the Pennsylvania, is attending the meetings of both associations, as usual. President Stewart, on discovering his presence at the first meeting, appointed him chairman of the dance committee. Mr. Young is now trying to find out who informed the president of his reputation as a cotillion leader.

Sam Lynn, master car builder of the Pittsburgh & Lake Erie, says that the large car repair shop which was built at McKees Rocks, Pa., a number of years ago is being used entirely for repairs to steel freight cars. The steel hopper and gondola cars which were put in service 12 or 15 years ago are now requiring heavy repairs in many cases.

C. L. Acker, master mechanic of the Toledo Terminal, spent Wednesday and Thursday at the convention. Pressure of business made it necessary for him to return to Toledo last night. He was enthusiastic over the exhibit in Machinery Hall and noticed several devices which he feels can be installed in his shops to good advantage.

One of the sweetest guests of the M. C. B. Association is little five-year old Florence Telford, daughter of the purchasing agent of the Queen & Crescent. Mr. and Mrs. Telford, the young daughter and their son Elliott, are staying at the Marlborough-Blenheim. With them is Mrs. C. A. Parquette, wife of the chief engineer of the Big Four.

A. R. Ayers is registered at the Marlborough-Blenheim and will remain for both conventions. Since the last meeting Mr. Ayers has assumed the duties of the newly created position of general mechanical engineer of the New York Central Lines, west of Buffalo. What is of more importance, he has also, in the meantime, assumed the position of a benedict.

G. E. Carson, district master car builder of the New York Central & Hudson River at West Albany, N. Y., is espe-

looking forward with considerable interest to the delivery of six new consolidation locomotives in July. They will have a number of new features and will be more powerful than those now in service.

S. T. Fulton, New York, general sales agent of the Railway Steel-Spring Company, is attending the conventions. Mr. Fulton formerly represented the company in Chicago, and was promoted to his present position recently. Prior to entering the supply business, he was assistant to the presi-



**J. F. Deems in Action—Was He Selling Supplies or Talking Politics?**

dent of the Rock Island Lines. This is the second year he has attended the conventions.

J. F. DeVoy, assistant superintendent of motive power of the Chicago, Milwaukee & St. Paul, who is also president of the Cornell Men's Association this year, is closely watching the papers having reports of the work of the crews preparing for the intercollegiate races at Poughkeepsie. Mr. DeVoy rowed in the Cornell 'Varsity crew when he was in college and has maintained his interest in college athletics.

W. L. Kellogg, superintendent of motive power of the Pere Marquette, was among the first of the railway men to register. He is stopping at Haddon Hall. Mr. Kellogg's brother, D. P. Kellogg, master mechanic of the Southern Pacific, is also quartered at Haddon Hall and has become thoroughly interested in the work of this, his first convention in the railway mechanical field.

It is with pleasure that we announce the arrival of "Jay" Henry, of the Safety Heating & Lighting Company. "Jay" is famous as the dare-devil auto driver of Orange, N. J. He was attired in his orange-colored gauntlets when he arrived for the convention and had no sooner reached his hotel than he commenced to expound to his friends his wonderful views regarding the future possibilities of automobiling.

The "Bureau of Information" which, so far as anyone here has been able to discover, exists in name only, said name being duly emblazoned in gold on a three-foot sign, was discovered yesterday morning swinging more or less gracefully between two uprights at Booths 501-3-5. Stephen Mason has been made temporary chairman. It is probable that Secretary Conway will in due course announce where the "bureau" may be found tomorrow.



**Mr. and Mrs. J. E. Marden—Mr. Marden was M. C. B. President in 1903.**

cially interested in the training of car department apprentices and is developing a special course for them, entirely different from that used in the motive power department. Important additions are being made to the car repair plant at West Albany.

Harry R. Warnock, master mechanic of the Monongahela, arrived Wednesday morning. His wife and daughter had preceded him, getting here on Friday last. Mr. Warnock is

H. J. Small, general superintendent of motive power of the Southern Pacific, was in the east about two weeks ago and thought at the time that he would be able this year to attend the Atlantic City conventions; but many important matters have since come up, and Mr. Small will therefore be unable to leave his office. He is an important member of both the M. C. B. and M. M. associations, and many will regret his inability to be present at the meetings.

R. W. Burnett, general master car builder of the Canadian Pacific, is stopping with his wife at the Marlborough-Blenheim. The first all-steel passenger coach on the Canadian Pacific is just being placed in service. It was designed and built at the Angus shops and has a number of special features, including a unique roof construction with a dormer window effect in place of the usual clear-story windows; also a special headlining and a cork floor. Each truck has its own brake cylinder and brake apparatus.

Thomas R. Cook, assistant engineer of motive power of the Pennsylvania Lines West of Pittsburgh, is registered at the Brighton. Mr. Cook, when he was stationed at Ft. Wayne, Ind., was very successful in developing a storage-battery system for equalizing the load on the power plant generators at ore docks. The load on this plant has almost instantaneous fluctuations of large amounts and by the system devised, much smaller generators, which operate at a constant load, have been made possible.

F. C. Pickard, master mechanic of the Pere Marquette at Saginaw, Mich., and president of the International Railway General Foremen's Association, arrived in Atlantic City yesterday. He is enthusiastic about the outlook for the General Foremen's convention at Chicago the latter part of July. The papers which have been prepared are said to be of more than ordinary interest and value, and the indications are that there will be a large attendance, the membership having increased considerably during the past year.

Dan Cupid has certainly been working overtime this year, having added the names of Ross Hayes and George Fox, of the eastern office of the Curtain Supply Company to his lengthy list. Both gentlemen are attending the conventions with their brides. Naturally these happy people are blindly oblivious to things mundane, so they are under the protecting wing of Mrs. Stanley W. Midgley, than whom none is better known. Mrs. Midgley is now enjoying her tenth consecutive convention. She, too, made her debut at these conventions as a bride.

H. E. Dickerman came to the convention this year with a very definite idea in his mind of "hanging" his exhibit without any casualties—and he nearly got away with it. But "Dick" weighs about 300, and it is sometimes hard for him to avoid all that starts his way. However, he did manage to hobble far enough away from danger to avoid what might have been a serious accident when one of the I-beams got away from the erecting gang putting up the frame intended to carry his exhibit. As it was, he was badly scraped both on his back and legs; but he stuck to his job and is still there.

Reference to stokers brings a ready response from F. H. Clark who, since his arrival, received news of some splendid work by his very large mallets equipped with stokers. These locomotives are in rushing service on 2 per cent. grade 8 miles long, and on Wednesday made two trips behind trains of 1760 tons, during which the shovel was not used at all and the hook but twice. These locomotives are among the largest ever built and have 99.9 sq. ft. of grate area. This is probably the best locomotive stoker work that has been done. The fuel consumption was at the rate of about 7000 pounds of coal per hour. The stokers are of the conveyer type using crushed coal.

A. J. Stevens, the new vice-president and general manager of the Barney & Smith Car Company, has been with the company since 1897, when he was made assistant lumber buyer. He, together with his father and paternal grandfather, have, in the aggregate, spent 90 years in the service of the Barney & Smith Car Company. Mr. Stevens reached Atlantic City yesterday morning; and he and the newly elected second vice-president and treasurer, J. F. Kiefaber, will go to New York to-day and from there back to Dayton. Mr. Stevens will return on Monday next with President Estabrook.

Prof. E. C. Schmidt, of the University of Illinois, arrived on Tuesday in a receptive state of mind for suggestions from anyone that considers himself an expert in designing locomotive testing plants. The new plant at the University of Illinois is now in course of construction and it is expected to be in operation before the end of the year. It will have a capacity for a drawbar pull as high as 125,000 lbs., and is arranged to eventually accommodate the largest types of Mallets. At the start, however, but four pairs of supporting wheels will be installed. This will be the largest locomotive testing plant in the world.

Eureka! Eureka!! The tyrant trusts, Electric Light and Gas are on the road to oblivion and bankruptcy. No more will struggling humanity have to dodge the meter man, or go to bed with the chickens. Gone are the days when we must use matches to see who should dig up the inevitable quarter. C. W. Wardell has solved the problem. Two little gold fishes (ordinary garden variety), a glass aquarium filled with water, a few glass tubes and a box of pills does the trick. The result is a beautiful white light. Of course, the secret lies in the pills; for these are fed to the fish, which immediately start on a marathon race. This disturbance causes the water to throw off oxygen which, when ignited, produces the above result.

R. D. Smith, superintendent of motive power of the Boston & Albany, who heads the committee on the Maintenance of Superheater Locomotives, is an enthusiastic advocate of superheat. The price of coal in New England is so high that fuel savings amount to more than in the more favored districts which have coal mines along the line. A saving of 25 per cent. in fuel, due to the superheater, when coal is \$4.00 per ton, means a substantial gain. Mr. Smith finds also that the firemen appreciate the fact that the amount of coal to be handled for a given trip is so much reduced that they can do better work in keeping up steam to maximum pressure for the whole trip. Incidentally, therefore, the superheater is to a certain extent accomplishing the same object as the automatic stoker though in a different way.

Malicious rumor has it that Wildin broke his bat in last year's game by holding it flat-grained to the ball. This he most emphatically and indignantly denies, and characterizes as maliciously intended. 'Twas a trusty bat, so Wildin says, and carried a long record of home runs unequalled even by the swat-sticks of Wagner, Cobb and Baker. It simply couldn't respond and hold together. True, Wildin had carefully calculated the stress himself in designing the bat; but the force behind the suddenly and intensely developed desire in him to spoil Pitcher Bale's curve and knock the ball to England was far beyond the calculated factor of safety, and really more than any bat should be expected to stand. It naturally broke. Nothing else was left for it to do. Wildin knows it, and so should everybody else. Could anything be simpler? If this rumor (and Downing, of the western team, is suspected of knowing something about it), is still sufficiently rugged to live after the above explanation, given us by Wildin, we will be forced to a conclusion that an asylum or membership in the Ananias Club is the only thing left for the doubting Thomases.



## The Exhibit.

The Standard Coupler Company, New York, is no respecter of politicians. It was showing on a slide at its booth yesterday photographs of Taft, Roosevelt and La Follette, Republicans, and Wilson, Harmon, Underwood and Bryan, Democrats.

J. V. Robinson, president of the Robinson Coupler Company, Washington, D. C., will not attend the convention this year. Mr. Robinson is now in British Columbia supervising the installation of connectors on a number of Great Northern cars. Clinton M. Smith, of the same company, is in charge of the pier exhibit.

In spaces 572 and 573 the Acme Supply Company, Chicago, is showing its new diaphragm. The novelty consists in its being made in sections and requiring no hood. Its construction provides for easy repairs and long life. The Apex type shown is especially new in shape, one of its most interesting and valuable features being its sharp drainage at the top.

F. H. Quail and Philip J. Duffy, representing the permanent manufacturers' exhibit of railway supplies and equipment, located in the Karpen Building, Chicago, are here in the interests of this recently established central-western institution. They report considerable success in securing tenants for space in their exhibit. They may be found in Booth 527.

The Storrs Mica Company, Owego, N. Y., has recently shipped a number of mica chimneys and lantern globes to a railway in Peru. In the mountainous country traversed by this railway, there has been a great deal of trouble from breakage of glass lamp and lantern globes, and after a thorough test of the Storrs company's articles, the railway placed its order.

The combination body and truck bolster steel underframe car shown this year by the Mid-Western Car Supply Company, Chicago, combines features which tend to reduce the cost of operation of freight trains by reducing excess dead weight per car, reducing liability of derailment owing to the low center of gravity, reducing first and maintenance cost per car by eliminating the number of parts and weight. By lowering the floor line of the car the cubical capacity is increased, with consequent increased revenue resulting.

A new steam hose coupler with locking device is being exhibited at the booth of Gold Car Heating & Lighting Company, New York. It couples in ordinary way and is steam tight—a slight tap, and it is locked. Also it couples and locks with other makes of couplers. The company is showing another device, which will be appreciated by those who travel in sleeping cars and have experienced the necessity of using pillows or blankets to stop the draughts when the window is raised for ventilation. This is the car window ventilator, or window shield, which provides fresh air without draughts.

There was the half-way making of a dog fight in the booth of the Pennsylvania Flexible Tube Company yesterday morning. The muzzled watch dog of the company stood at the back wagging his pneumatic tail, when a lusty bull terrier in flesh and blood was led by in leash. The goggle eyes and wagging tail were too much for the bull terrier's irritable sensitiveness, and he barked viciously and strained at the leash. Had he not been firmly held the tube company's good natured poodle would have been no more. The crowd that gathered to see a real dog fight was as much displeased as was the real dog when he was dragged away.

The Jones & Laughlin Steel Company, Pittsburgh, Pa., has an attractive exhibit of some of their wares arranged on a pulley, which is made to revolve on a vertical and horizontal axis at the same time. The base on which the pulley turns

is a rope sheave. The spaces between the spokes are paralleled, and on these panels is arranged an attractive array of examples of cold rolled shafting, sheets, spikes, twisted reinforcing bars for concrete work, chains, nails, wire, channels, I-beams, rails, special shapes, rounds, hexagons and squares, angles and Z's, all in a number of sizes, showing, in part, the wide range of the products of the company. The exhibit is in charge of W. T. Mossman.

The condensed time tables of the S. C. H. & L. Lines furnishes about all the information visiting railway or sup- plymen need to get into, or out of, Atlantic City, or to add to their comfort while here. The pages show correct time tables giving connections with through western trains; through express service to and from New York and Philadelphia; officers and members of the executive committees of the M. C. B., M. M. and R. S. M. associations. entertainment program; automobile road map, showing routes between Atlantic City, Philadelphia and New York; map of Atlantic City and a diagram of exhibit spaces and location of each exhibitor. A two-page physical map of North America shows the railways using Pintsch mantle lights and location of Pintsch plants. A copy of this handy reference will be given to visitors calling at the booth of the Safety Car Heating & Lighting Company.

The McConway & Torley Company, Pittsburgh, Pa., is showing a full size model of the Buhoup flexible truck, embodying some improvements in design over the truck exhibited at last year's convention. This truck has been thoroughly tested out in service and has demonstrated its claims of superiority and efficiency over the rigid type of truck. It is being applied to many new locomotive trucks and is an especially desirable truck for this service. Its feature of vertical flexibility allows the truck to adapt itself to all uneven conditions of track, high or low joints, with all wheels firmly on the rails, without any undue strains on any part of the truck, and thus practically eliminating derailment from these causes. While the truck is flexible to vertical movement, it is rigid to any twisting or angular horizontal movement and is always square. It has a wide distribution of load and an increased spring capacity, using either spiral or elliptic springs, insuring a very easy riding truck.

### WHY PLUSH FOR CAR SEATS?

The evolution of the modern passenger coach has shown many changes in the form and mechanism of the seats; but the seat covering has remained practically the same through all these changes. Plush serves that purpose better than any other material. Moleskin, hair cloth, leather, artificial leather and rattan have been used; but only in the exceptional case have they been found superior to plush, and by far the greater number of seats have been covered with that fabric. On examination, no other material seems to present so many advantages, and the reason for its use is the natural selection as the result of experience. Plush is durable; it is soft and pliable to the touch; dust, cinders and dirt sink into it; lint and the more solid materials are brushed away by it; air circulates through its meshes, and the yielding surface of plush seems to cling to another cloth surface and give none of the sliding sensations of two hard surfaces in contact. Plush takes any color, and selection has a wide range. Large railway systems use a standard color for reasons of uniformity and economy. Variety is offered by the use of frieze—a high-pile plush with a figure or design in uncut fiber to relieve the solid mass of color. Within the last four years there has been extensive use of friezette—a low-pile plush with the design formed by cut loops. These figures meet the eye against a background of uncut loops, having the elegance and refinement of satin. The car plush industry of this coun-

try centers about Boston. The Bay State Brand is made there by the Massachusetts Mohair Plush Company. W. W. Melcher, of the company, has Booth 22 in the main building, where he tells about car seats and plush and why Bay State Brand is best.

#### SEVENTY-TON PEDESTAL JAW TRUCK.

The accompanying illustration shows a new design of freight car truck which is exhibited by the American Steel Foundries Company, Chicago. It is intended either for 50-ton equipment using  $5\frac{1}{2}$  in. x 10 in. journals, or 70-ton equipment employing 6 in. x 11 in. journals. The standard design of Andrews' cast steel side frame has been so modified that the necessity of a tie bar has been done away with entirely, and the frame is so secured to the journal boxes that the wheels can be changed with even greater facility than is the case with trucks using any of the usual designs of arch bar construction. The frames are known as the pedestal type, being made with jaws on each end which fit over the boxes and engage with guides cast on the sides of the boxes. The weight of the frame and truck holds the jaws securely in place across the top and against the side guides of the journal boxes.

A bolt passing through the lugs on the top of the journal box and end portion of the frame holds the two parts together and eliminates the possibility of the frames becoming separated from the oil boxes in case the car should be derailed. These top journal box bolts carry no weight in service and are subjected to little or no wear. The journal boxes are of standard M. C. B. design with the exception of the side guides and the top bolt lugs.

The two side frames of the truck are held rigidly at right angles with the axles by a heavy channel spring plank, which is secured to the spring seat of each side frame by 10 rivets, making a total of 20 rivets per truck. This construction assures the truck remaining square and prevents excessive friction of the wheel flanges against the rail and the abnormal wear of journal bearings and wedges, which occurs when trucks are out of square.

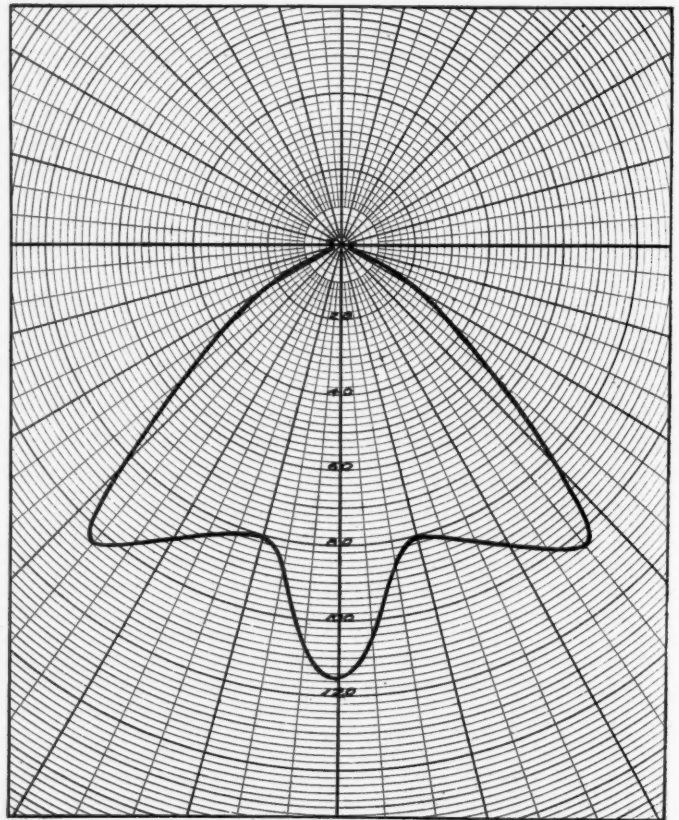
When it is necessary to change wheels on cars equipped with trucks of this design the top bolts are removed from the journal boxes, and the frames are jacked up sufficiently to allow the jaws of the frame to slip out of the journal box side guides, after which the wheels and axles can be rolled out.

As these pedestal jaw frames are intended for use without the usual tie bars or journal box bolts, a material saving in the total weight of the truck is effected, and at the same time the number of parts is reduced. The total weight of the truck exhibited, which has 6 in. x 11 in. journal boxes and is intended for 70 or 75-ton equipment, is 8000 lbs. Other material manu-

factured by the American Steel Foundries and used on the truck consists of Davis cast steel wheels, the cast steel truck bolster, Ajax brake beams and Simplex bolster springs.

#### CAR LIGHTING FIXTURES.

The display of car lighting fixtures at the exhibit of The Safety Car Heating & Lighting Company, New York, is even more attractive than the exhibits made by this Company in former years. Many new fixtures have been developed in



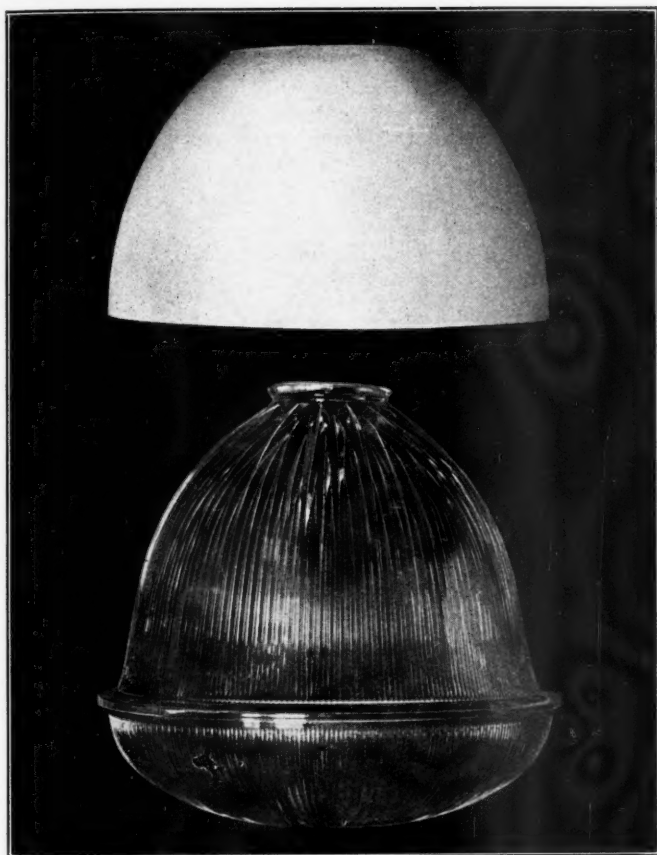
Characteristic Distribution of Electric Center Lamp (reflector-bowl opal envelope type) Using 50-Watt G-30 Tungsten Lamp.

the past year, among which are two types of fixtures known as the reflector-bowl-enclosing envelope-type. One of these fixtures is used with the Pintsch mantle and the other with the electric lamp. The object of using an enclosing envelope with this type of fixture is to eliminate the objection of dust



Seventy-Ton Pedestal Jaw Truck.





Prismaic Reflector-Bowl Unit and Opal Glass Enclosing Envelope.



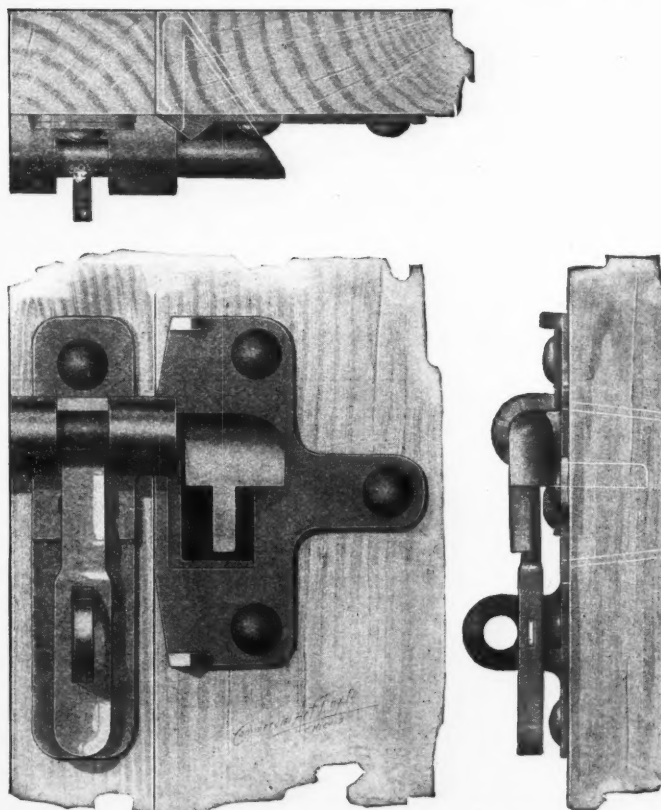
Reflector-Bowl, Enclosing Envelope Type Lighting Fixture  
Used with Either Pintsch Mantle or  
Tungsten Electric Lamp.

and dirt collecting on the prismatic glass reflectors and bowls. The reflectors and bowls employed have been designed to give the correct distribution of the light with the maximum illumination on the seats of the car. To accomplish this the prisms in the glass are used on the outside of the reflector and the inside of the bowl. With this arrangement a serious objection arises with the uneven surfaces necessitated by the use of prisms, and presented where they will collect the most dirt. These fixtures are mechanically constructed, so that all dirt is excluded from the interior of the lamp, and from the prismatic surfaces on the outside of the reflector.

The Safety Car Heating and Lighting Company announce that they are in a position to make these fixtures in several different sizes for use on both the center deck and the half deck of the car. The recent installation of these fixtures in some new Frisco dining cars is not only attractive in appearance but is capable of giving the best light distribution from either the Pintsch mantle or an electric lamp.

#### UTILITY AUTOMATIC LOCK FOR BOX CAR DOORS.

The repair of freight car doors is a large item of expense to railways and, in addition to the actual cost of the repairs, the loss of cars from service while in bad order is often a serious matter. If a car door is damaged so that it cannot be locked and sealed the car cannot be used until repairs are made. While cars are being handled empty the doors bump back and forth and become damaged; the door stops split; the hangers



Utility Automatic Lock for Box Car Doors.

and track are damaged and the back stops and bottom guides are loosened and knocked off.

The Utility automatic locks prevent most of this damage, because the first time the car door rolls open or shut it is securely locked so that no matter how rough the switching the door is not damaged.

The accompanying illustration shows the lock. It consists of malleable castings fastened together by three bolts which pass

through the door stop and door post with the nuts on the inside.

The lock consists of a back plate, a loose pin and a clamp over the pin. The pin has a lug at one end to engage with the door and a sealing lever at the center. The hasp on the door has a recess to receive the lug on the pin. When the door is closed, the lug is pushed back, revolving the pin and raising the sealing lever. When the recess is opposite the lug the latter drops into it and the lever falls into place. A seal may be passed through the seal slots and the lever cannot be raised to allow the door to be opened. A padlock may be put through the hole in the lug over which the lever arm rests. The recess in the door hasp allows for any sagging of the door and any variation in the thickness of the door does not affect the working of the lock. The projecting pin wedges the door securely in place and shifting loads cannot bulge it as with the ordinary hasp and pin. The support at the center of the door is also a useful feature.

A lock is also placed on the rear of the door to engage a combination back stop and hasp on the car. This locks the door open. The need of locking car doors open is recognized, as very often it is necessary to dry out or air cars while being handled empty. The locks cannot be removed from the car when the doors are closed, and a burglar cannot enter the car by removing the lock and then avoid detection by replacing it. Utility automatic locks are manufactured by the Railway Utility Company, Chicago.

#### SEVENTY-TON ORE CARS.

The type of ore car shown in the accompanying illustration has been used for several years by the Woodward Iron Company for carrying ore. The first lot cars were of 100,000 lbs. capacity, the second of 120,000 lbs., and the third lot has been increased to 140,000 lbs. These cars were made by the Pressed Steel Car Company, Pittsburgh, Pa., and are of the hopper bottom center dumping type with the doors hung in pairs. They are operated by means of a chain and gear device and may be easily and quickly opened or closed, by one man, from either side of the car. The floors and hopper sheets are steep and the door openings large and so arranged that the entire load is dumped between the rails. Steel plates, rolled shapes and pressed steel have been used in the construction to obtain a

car of the required size, with a minimum weight and yet strong enough to withstand the service to which such cars are subjected.

The center sills which extend from bolster to bolster on either side of the door opening, are made of 10-in. bulb angles. The draft sills are made of pressed steel and have the shape of an inverted U. They extend from the end sill back through the bolster web plate and are attached to it by means of a  $\frac{3}{8}$  in. tie plate on the top and a  $\frac{1}{2}$  in. tie plate on the bottom and by 3 in. x 3 in. x  $\frac{5}{16}$  in. angles on either side. The side sills are made of 6-in. channels and extend from end to end of the car; the end sills are also made of the same size channels and have pressed steel sub-end sills at the coupler opening. The side, end and floor sheets are made of  $\frac{1}{4}$  in. plates substantially reinforced and braced by angles and channels. The corners of the car are additionally braced by means of diagonal braces made of 5-in. channels extending from the bolster and draft sill tie plates to the corner of the car.

The trucks are of the arch bar type with M. C. B. 6 in. x 11 in. axles. They have steel wheels, reliance truck bolsters, pressed steel truss type brake beams, and bearings and stop wedges to suit the latest M. C. B. 6 in. x 11 in. axles. The cars were equipped with the Westinghouse K-D 10-12 air brakes, friction draft gear and 5 in. x 7 in. shank steel couplers with the ordinary release rigging arranged to be operated from either side of the car.

The general dimensions are as follows:

Length inside of body.....	23 ft. 7 in.
Width inside of body.....	8 ft. 11 $\frac{1}{2}$ in.
Width over side stakes.....	9 ft. 6 in.
Length over end sills.....	25 ft. 3 $\frac{1}{4}$ in.
Height from rail to top of body.....	10 ft. 3 in.
Distance center to center of trucks.....	15 ft. 8 in.
Length of each door opening in clear.....	3 ft. 6 in.
Width of each door opening in clear.....	2 ft. 11 $\frac{3}{4}$ in.
Cubic capacity—level.....	1,105 cu. ft.
Cubic capacity 10 in. average heap.....	1,275 cu. ft.
Weight of body.....	18,150 lbs.
Weight of trucks.....	20,350 lbs.
Total weight of car.....	38,500 lbs.
Ratio of paying freight to total weight of car when loaded.....	80 per cent.

Cars of this type have been built for a number of the Western ore carrying roads and have given satisfactory service.



Heavy Ore Car of 140,000 Lbs. Capacity.